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Shallow-water Crabs from the Oshima Passage between Amami-Oshima and Kakeroma-jima Islands, the Northern Ryukyu Islands

By

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As a part of the Natural History Research Project of the Japanese Islands by the National Science Museum, Tokyo, dredging operation to obtain benthic invertebrates was carried out at 27 stations (Fig. 1) ranging from 15 to 70 m deep in the Oshima Passage between Amami-Oshima and Kakeroma-jima Islands, the norhtern Ryukyu Islands, in July 1988.

The present report is mainly based on this collection of crabs referred to 42 species of 10 families, which were collected with dredging gear made by iron-frame of 90 cm wide, 20 cm high and 30 cm deep. Furthermore, the following collections from the Oshima Passage were examined and recorded together: 1) Crabs (13 species) found among seaweeds, sponges, ascidians and other invertebrates scraped as refuse from shells of the pearl shell, *Pteria penguin*, commercially cultivated in the Oshima Passage, 2) Crabs (19 species) dredged up in 1970 by students of the Department of Fisheries, Kagoshima University, and 3) Crabs (18 species) collected by Mr. I. SOYAMA, the professional photographer, during his SCUBA diving at some spots off Kakeroma-jima Island in the Oshima Passage.

The coral-inhabitants of Amami-Oshima Island are not always thoroughly investigated, but most of them are very likely found in the southern Ryukyu Islands, the fauna of which is rather well known. The discoveries of the new species or the species new to the Japanese carcinological fauna are hardly expected. On the other hand, there is no contribution to the shallow-water crabs from Amami-Oshima Island as well as the southern Ryukyu Islands, so that the records of these collections are of great worth. In reality, of 81 species of 14 families, 2 and 23 species are to be described as new to science and new to the Japanese fauna, respectively, and also some quite rare or imperfectly known species are to be noted for subsequent identification. All the specimens including the type series of the new species are deposited in the National Science Museum, Tokyo (NSMT).

Before going further the author must record his indebtedness to the Setouchi Fishermen's Cooperative Association, and the Tazaki Pearl Co., Ltd., for arrangement and co-operative support for the field survey. Prof. Toshio SAISHO of Kagoshima University was kind

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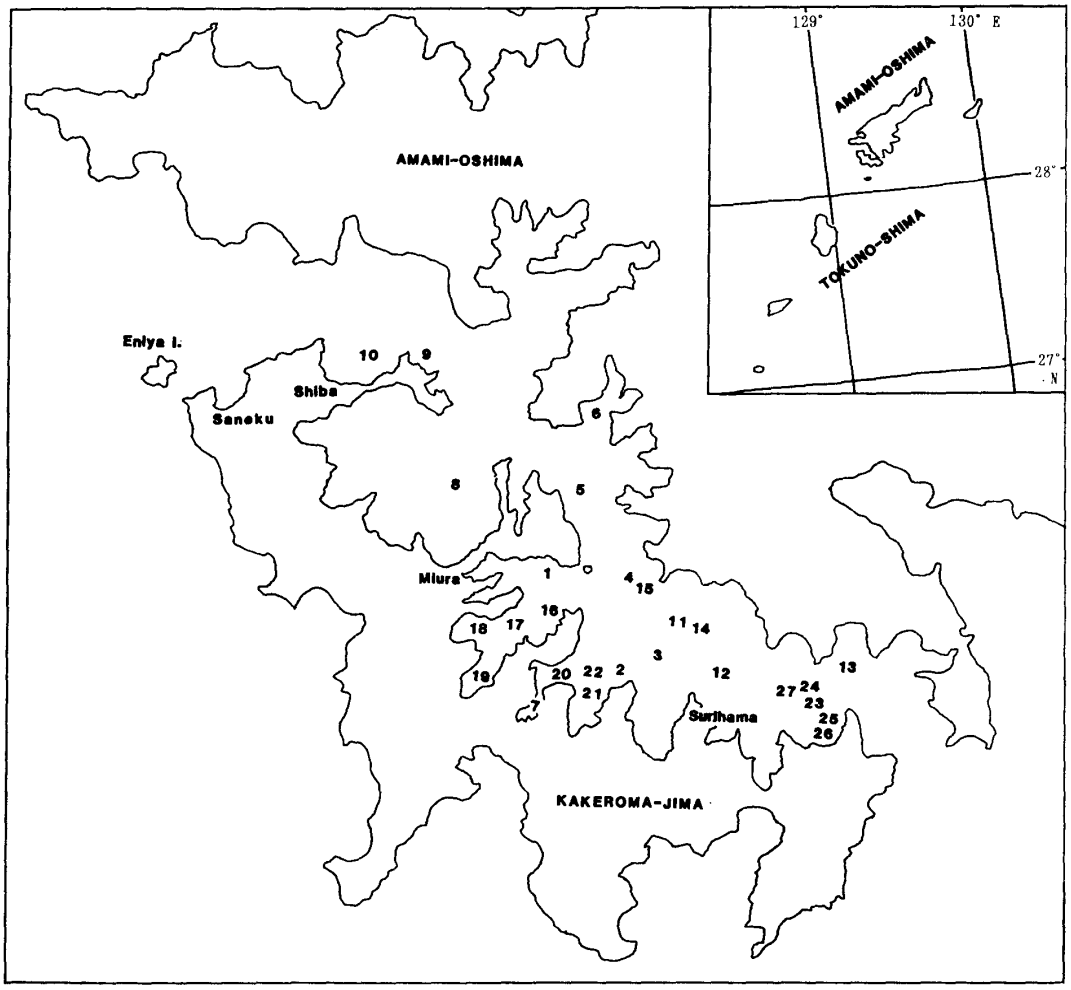

Fig. 1. Map of the Oshima Passage between Amami-Oshima and Kakeroma-jima Islands showing the sampling stations.

enough to make the collection under his care available to the present author, and Mr. Isamu SOYAMA, the professional photographer in Fujisawa, Kanagawa Prefecture, kindly offered the specimens collected by hand during his SCUBA diving. Finally it is recorded that the identification of a female specimen from Kita-Iwo-jima Island as *Elamena gracilis* was reconfirmed by Dr. J. S. LUCAS of James Cook University, Queensland, during his short visit to the National Science Museum, Tokyo.

Family Dromiidae

Genus *Petalomera* STIMPSON, 1858

Petalomera sp.

Oshima Passage, 25–40 m deep; 1 ovig. ♀ (cb 7.0 mm, cl 8.4 mm); 29–VI–1970; Kagoshima Univ.

This species is characteristic in having the carapace which is much longer than wide,

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vaulted laterally and covered with very short, thick tomentum; anterolateral border armed with two indistinct teeth, and the front is composed of only two lobes, without a median tooth. This species has the epipod on the chelipedal coxa and the female sternal sulci ending apart and attaining as far as the interval between the coxae of the first ambulatory legs of both sides. Although the front is composed of only two lobes, its systematic position is in the genus *Petalomera*. In this genus, *P. yamashitai* TAKEDA et MIYAKE may be close to this species, but the carapace is covered with more rough setae, and the carapace is apparently wider in this species.

Family Leucosiidae

Genus *Arcania* LEACH, 1817

Arcania sp.

Oshima Passage, 25–40 m deep; 1 ♀ (cb 8.7 mm); 29–VI–1970; Kagoshima Univ.

St. 3, between Koniya and Shiraki-zaki, Oshima Passage, 55 m deep, gravel and shell; 1 carapace (cb 6.0 mm); 4–VIII–1988; M. TAKEDA. St. 24, off Doren, Oshima Passage, 40 m deep, sand and shell; 1 ♀ (cb 10.0 mm); 8–VIII–1988; M. TAKEDA.

Although the specimens at hand are rather small in size, they agree generally with the photograph of *Arcania erinaceus* (FABRICIUS) given by SAKAI (1976). The dorsal surface of the carapace is covered with tubercles of variable size, most of which are truncated at tips. In the specimens at hand the carapace is armed with ten marginal and one intestinal spines which are provided with secondary spinelets and distinctly longer than those on the dorsal surface. The present specimens differ from *A. erinaceus* in the feature that the second spine of the branchial margin is as long as the hepatic spine and much shorter than the posterior branchial spine. The marginal spines and truncated tubercles of the carapace offer the clue to distinguish this species from *A. globata* STIMPSON from Japan and China.

Genus *Cryptocnemus* STIMPSON, 1858

Cryptocnemus pentagonus STIMPSON, 1858

St. 21, off Oshikaku, Oshima Passage, 40 m deep; coarse sand and shell; 1 ♂ (cb 6.2 mm); 6–VIII–1988; M. TAKEDA.

Known only from the west coast of Kyushu (Kagoshima Bay, Amakusa, Nagasaki and the Goto Is.), 15–50 m deep.

Genus *Heteronucia* ALCOCK, 1896

Heteronucia venusta NOBILI, 1906

Miura, Kakeroma-jima I.; 1 ♀ (cb including lateral tubercles, 7.0 mm); 15–VII–1988; M. TAKEDA.

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Saneku, Kakeroma-jima I., 3–5 m deep; 1 ♂ (cb 4.2 mm); 6–IV–1989; I. SOYAMA. Saneku, Kakeroma-jima I.: 1 ovig. ♀ (cb 6.5 mm); 24–V–1989; I. SOYAMA.

Restricted to the Pacific, being known from Japan (Sagami Bay to Amami-Oshima I.), Timor, Tahiti and the Tuamotu Islands, 10–65 m deep.

Genus *Leucosia* WEBER, 1795

Leucosia alcocki OVAERE, 1987

(Fig. 2; Pl. 1 A)

St. 24, off Doren, Oshima Passage, 40 m deep, sand and shell; 1 ♀ (cb 9.2 mm, cl 9.7 mm); 8–VIII–1988; M. TAKEDA.

The female at hand agrees well with the descriptions and figures of *Leucosia alcocki* which has been recently described by OVAERE (1987) from Papua New Guinea. The general appearance of the carapace of this "fur-bearing *Leucosia*" is rather similar to that of *L. sagamiensis* SAKAI, but the elegantly urn-shaped carapace, with dark brown fur along its posterolateral margins, the reticulated color pattern on the carapace, and the slender, not inflated chelipedal merus are characteristic of this species.

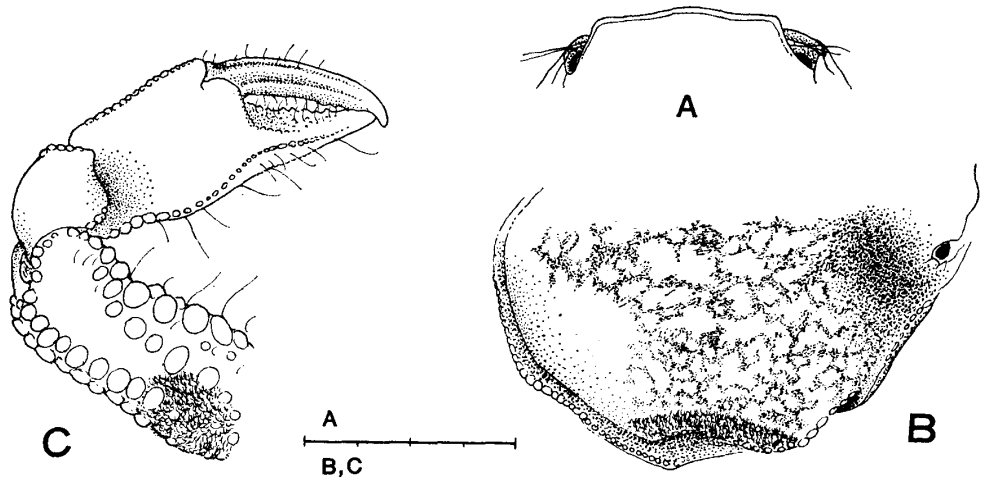

Fig. 2. *Leucosia alcocki* OVAERE, 1987, ♀ from St. 24. A, Frontal region; B, right half of carapace; C, left cheliped. Scales in mm.

Only a discrepancy is that the front is convex without any indentation in the specimen at hand, contrary to four low lobes described and figured for *L. alcocki* by the original author.

Besides the type locality, Papua New Guinea, this species is recorded from the Andaman Islands, India and the Persian Gulf by ALCOCK (1896) and NOBILI (1906) as *L. margaritata* A. MILNE EDWARDS.

Leucosia anatum (HERBST, 1783)

St. 15, between Seto-zaki and Hyo-kojima Islet, Oshima Passage, 70 m deep; sand and shell; 1 ♀ (cb 19.4 mm); 5–VIII–1988; M. TAKEDA.

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The specimen at hand is a carapace of dead female, with all the chelipeds and ambulatory legs missing. It is ornamented with some annelid tubes and a small colony of bryozoans, but the elegant red lines on the carapace are distinctly traceable.

Indo-West Pacific from Japan to Australia, and westward to the Persian Gulf and Mauritius, 15–80 m deep.

Leucosia perlata DE HAAN, 1841

St. 19, near Seso, Oshima Passage, 25 m deep, coral and rock; 1 ovig. ♀ (cb 13.0 mm); 6–VIII–1988; M. TAKEDA.

This species has been recorded in *Okinawan Decapods and Shells in Color* (HIRATA *et al.*, 1973), the revised edition of which was published in 1988. This species is characteristic in the color that the carapace is dark grey on its anterior 2/3, paler posteriorly, with a dark spot on either side of the cardiac region. The first male pleopod is figured by STEPHENSEN (1945) and TYNDALE-BISCOE & GEORGE (1962).

The geographical range is from the Ryukyu Islands through Hong Kong and the Malay Archipelago to Australia, and also westward to the Persian Gulf. The present record made the northern limit extended further north to Amami-Oshima Island in the northern Ryukyu Islands.

Leucosia sp.

St. 24, off Doren, Oshima Passage, sand and shell, 40 m deep; 1 young ♀ (cb 14.3 mm, cl 17.1 mm); 8–VIII–1988; M. TAKEDA.

The color pattern of the specimen at hand is very close to that of *Leucosia formosensis* SAKAI which is known only by the holotype female, cb 21 mm and cl 24 mm, from Kao-Hsiung, Taiwan. The shape of the thoracic sinus is also somewhat similar to that of the Taiwanese species; the anterior dorsal margin of thoracic sinus is simply and deeply invaginated, and there is a row of four small pearly granules along lower edge of the sinus. However, the specimen at hand differs from the species in some important features; the anterolateral border of the carapace is fringed with several large, hemispherical granules instead of "numerous" granules; the front is medially provided with a small, but distinct sharp tooth instead of the "subtruncate or sinuate" margin; the third maxilliped is elongate and smooth, without any armature and hairs in this species, while in *L. formosensis* the ischium is armed with a prominent tubercle near its distal extremity, and there is a row of brown hairs along the inner borders of the ischium and merus. The specimen at hand is not fully matured, but these discrepancies may be specific.

Genus *Myra* LEACH, 1817

Myra fugax (FABRICIUS, 1798)

St. 2, northwest of Shiraki-zaki, Oshima Passage, 50 m deep, sand; 1 ♀ (cb 17.7 mm),

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1 juv. (cb. 10.2 mm); 2–VIII–1988; M. TAKEDA. St. 24, off Doren, Oshima Passage, 40 m deep, sand and shell; 1 young ♀ (cb 10.3 mm); 8–VIII–1988; M. TAKEDA.

Known from shallow-waters of the Indo-West Pacific from Japan to South Africa and the Red Sea, and emigrated to the Mediterranean through the Suez Canal.

Genus *Nursia* LEACH, 1817

Nursia japonica SAKAI, 1935

Oshima Passage, 25–40 m deep; 1 ♀ (cb 4.8 mm); 29–VI–1970; Kagoshima Univ.

St. 21, off Oshikaku, Oshima Passage, 40 m deep, coarse sand and shell; 1 ♀ (cb 4.1 mm); 6–VIII–1988; M. TAKEDA.

The larger female agrees well with the figures given by SAKAI (1935, 1937, 1965b, 1976), but in the smaller female the following discrepancy is to be noted. The intestinal region is compressed, triangular in the dorsal view, and protruded beyond the lateral ends of the posterior border of carapace; each lateral end is lobate, much more developed than in the figures given by the original author and rather close to that of *N. elegans* IHLE from Kei Island.

Restricted to Japanese waters from Sagami Bay, Kii Minabe at west coast of the Kii Peninsula, the Sea of of Ariake and the East China Sea, 25–100 m deep.

Genus *Oreophorus* RÜPPELL, 1830

Oreophorus rugosus STIMPSON, 1858

St. 15, between Seto-zaki and Hyo-kojima, Oshima Passage, 70 m deep, sand and shell; 1 ♂ (cb 8.4 mm); 5–VIII–1988; M. TAKEDA. St. 20, west side of Nominoura, Oshima Passage, 35 m deep, coarse sand and shell; 1 ♀ (cb 18.0 mm); M. TAKEDA.

This species was described and figured in detail by SERÈNE (1954) and TAKEDA (1973b) based on the material from Viet Nam and the Palau Islands, respectively.

Indo-West Pacific from Kyushu, Japan to New Caledonia and Queensland coast, and also to Mauritius in the western Indian Ocean.

Genus *Philyra* LEACH, 1817

Philyra platycheira DE HAAN, 1841

Oshima Passage, 25–40 m deep; 4 ♂♂ (cb 9.4–14.3 mm), 3 ♀♀ (cb 13.5–14.2 mm); 29–VI–1970; Kagoshima Univ.

St. 2, between Shiraki-zaki and Otsu-zaki, 50 m deep, sand; 2 ♂♂ (cb 8.8 and 10.5 mm); 4–VIII–1988; M. TAKEDA. St. 24, off Doren, Oshima Passage, 40 m deep, sand and shell; 2 ♂♂ (cb 9.7 and 10.2 mm), 2 ♀♀ (10.9 and 12.0 mm); 8–VIII–1988; M. TAKEDA.

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Known from the Indo-West Pacific from Japan to Australia, and westward to the Persian Gulf and South Africa, 35–150 m deep.

Genus ***Pseudophilyra*** MIERS, 1879

Pseudophilyra tridentata MIERS, 1879

Oshima Passage, 25–40 m deep; 1 ♂ (cb 6.3 mm); 29–VI–1970; Kagoshima Univ.

Known from the Indo-West Pacific from Japan through the Gulf of Thailand, the Torres Straits, Western Australia and the Persian Gulf to the Red Sea, 10–30 m deep.

Family Calappidae

Genus ***Calappa*** WEBER, 1795

Calappa lophos (HERBST, 1782)

St. 23, off Doren, Oshima Passage, 35 m deep, sand and shell; 1 juv. (cb excluding lateral cylpeiform expansions, 18.5 mm); 8–VIII–1988; M. TAKEDA.

Known from the Indo-West Pacific ranging from Japan through Southeast Asia and India to the Persian Gulf and Dar-es-Salaam, 30–50 m deep.

Calappa philargius (LINNAEUS, 1758)

St. 16, southeast of Tawara-zaki, Oshima Passage, 45 m deep, fine sand; 1 juv. (cb excluding lateral clypeiform expansions, 21.5 mm); 6–VIII–1988; M. TAKEDA.

Known from the Indo-West Pacific ranging from Japan through the Malay Archipelago southward to Australia, and then through the Andaman Sea westward to the Red Sea, 30–100 m deep.

Family Hymenosomatidae

Genus ***Elamena*** H. MILNE EDWARDS, 1837

Elamena gracilis BORRADAILE, 1903

(Fig. 3)

Eniya Islet, Oshima Passage, 5 m deep; 1 ♂ (cb 5.2 mm, cl 4.7 mm); 1–X–1988; I. SOYAMA.

In addition to the male from Amami-Oshima Island, a female (cb 4.2 mm) from Kita-Iwo-jima Island in the south of the Ogasawara Islands was examined for comparison. The female seems to be not fully developed, but both specimens agree well with each other in the shape of the carapace, chelipeds and ambulatory legs. They were identified with hesita-

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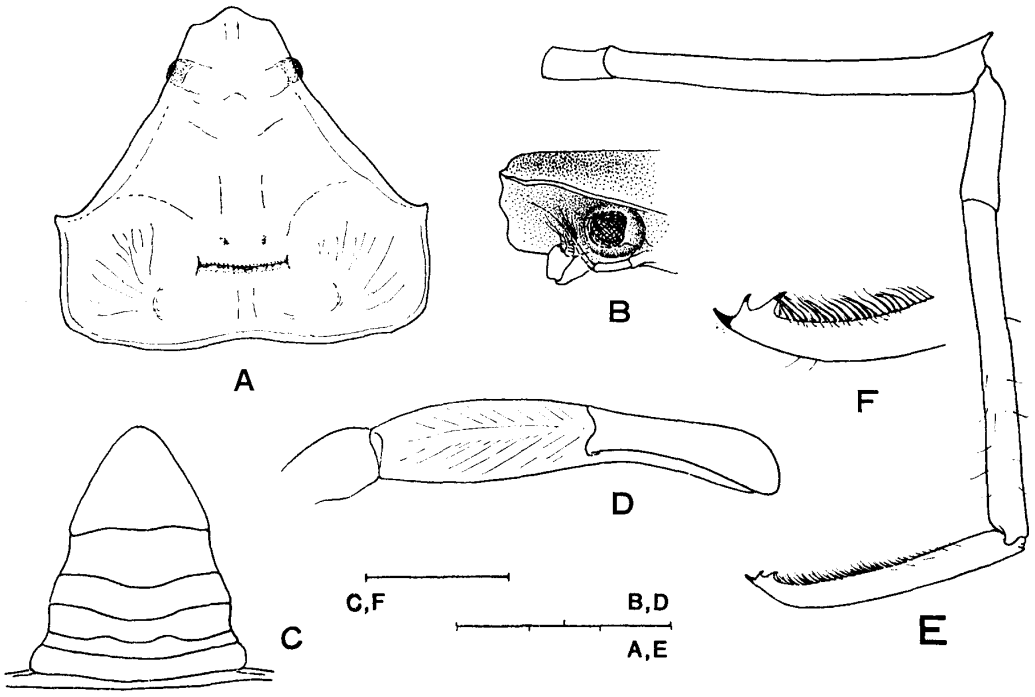

Fig. 3. *Elamena gracilis* BORRADAILE, 1903, ♂ from Eniya Islet. A, Carapace; B, frontal region in lateral view; C, abdomen; D, left chela in dorsal view; E, one of right ambulatory leg; F, tip of dactylus. Scales in mm.

tion to this rare species which is known only by the original description in 1903 based on one male and two females from the Maldive Islands.

The specimens at hand agree generally with the original description cited as "...the sides of the hinder part of the body are straight from the 4th to the 1st pair of legs, and then turn inwards almost at right angles to join the fore part, which is triangular, with very slightly irregular sides;...", but disagree with the original figure associated with this description. In the figure the epibranchial tooth is situated at the half way of the carapacial length, and the posterolateral margin is oblique; on the contrary, in the specimens at hand the epibranchial tooth is placed more posteriorly, because the fore part of the carapace is 1.5 times as long as the hinder part, and the posterolateral margin of the carapace is almost transverse for its most part and only weakly curved forward toward the lateral margin of the carapace. The shape and armature of the chelipeds and ambulatory legs appear to be identical with those of the type material.

Family Majidae

Genus *Achaeus* LEACH, 1817

Achaeus serenei GRIFFIN et TRANTER, 1986

(Fig. 4)

St. 15, between Seto-zaki and Hyo-kojima Islet, Oshima Passage, 70 m deep, sand and shell; 2 ♂♂ (cb 3.4 mm, cl including rostrum, 6.2 mm; cb 5.3 mm, cl 8.5 mm); 5–VIII–1988; M. TAKEDA.

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Two males at hand agree quite well with the original description and figures based on the specimens from north of Phuket, Java Sea, Sunda Strait and Sulu Sea, 15–40 m deep. The following is the distinguishing characters.

Carapace narrow, with elongate neck and a constriction between hepatic and branchial margins, rather depressed as a whole, with broad groove surrounding branchial and cardiac regions; protogastric and mesogastric regions each with a blunt tubercle, and cardiac region tipped with three blunt tubercles, anterior two of which are arranged side by side. Rostrum divided into two blunt lobes by a median U-shaped sinus. Supraorbital eave unarmed. Eyestalk stout, armed with a small tubercle midway along anterior margin and a tubercle above cornea at distal extremity of eyestalk; cornea large, circular. Male chelipeds robust. Ambulatory legs very long, subfiliform; dactyli of first two pairs long, only weakly curved distally, unarmed, with long straight hairs; dactyli of last two pairs weakly curved, with short hairs and many small teeth. Male abdomen convex laterally at third segment and subtruncated apically at distal segment. First male pleopod slender, weakly expanded and

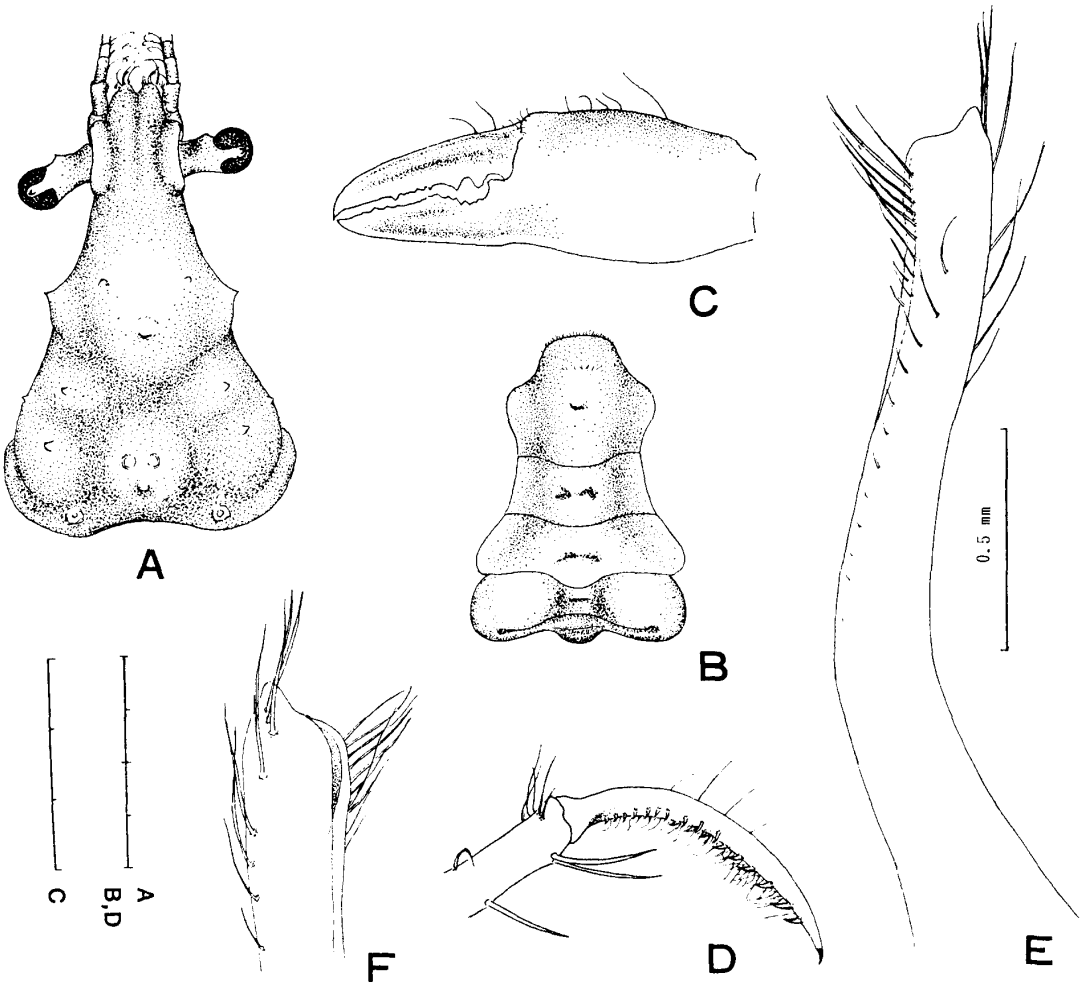

Fig. 4. *Achaeus serenei* GRIFFIN et TRANTER, 1986, ♂ from St. 15. A, Carapace; B, abdomen; C, left chela; D, ambulatory dactylus; E, first pleopod of left side in sternal view; F, distal part of the same in abdominal view. Scales in mm.

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curved outward distally, being provided with two rows of long hairs near tip each on medial and lateral surfaces.

As rightly noted by the original authors, this species is most close to *A. brevirostris* HASWELL from Australia in its general appearance, but the only weakly curved dactylus of the last leg, with many minute teeth, differs from the strongly curved dactylus, with recurved spines becoming larger in the distal half. *Achaeus brevidactylus* SAKAI from Japan is also somewhat similar to this species, but the dactyli of the first two ambulatory legs are broader distally.

Achaeus villosus RATHBUN, 1916

(Fig. 5)

St. 25, off Doren, Oshima Passage, 35 m deep, sand and shell; 1 ♂ (cl 6.3 mm, cb 4.2 mm); 8–VIII–1988; M. TAKEDA.

The ambulatory legs of the specimen examined are thickly covered with sponges like in the case of *Achaeus japonicus* DE HAAN. This specimen agrees well with the redescription

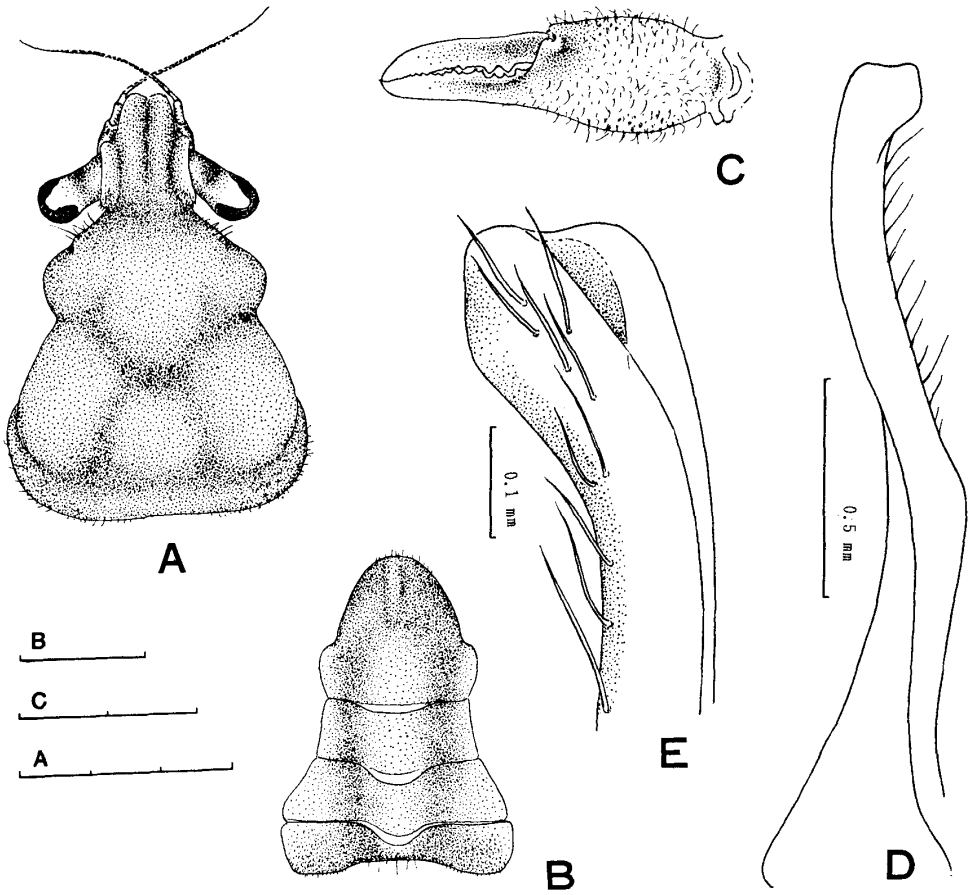

Fig. 5. *Achaeus villosus* RATHBUN, 1916, ♂ from St. 25. A, Carapace; B, abdomen; C, left chela; D, first pleopod of left side in abdominal view; E, distal part of the same in sternal view. Scales in mm.

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of the holotype from the Sulu Archipelago by GRIFFIN (1976) and the description and figures of the additional material from some localities in the Malay Archipelago by GRIFFIN & TRANTER (1986). The diagnostic characters are given as follows.

Carapace rather weakly convex as a whole without distinct tubercles, being covered with microscopical spinules; gastric and cardiac regions broadly elevated; hepatic margin obtusely convex outward and obliquely downward; postorbital constriction strong, without neck. Eyestalk short, stout. Palm of chela inflated at its middle; fingers leave a narrow gape for their proximal halves. Ambulatory legs long; dactylus of last leg slender, not curved, with three or four small teeth in distal half.

In the congener, *Achaeus japonicus* DE HAAN, the carapace is smooth, without spinules, and the dactylus of the last ambulatory leg is strongly curved, and in another congener, *A. robustus* YOKOYA, the ambulatory legs are shorter, the eyestalk is much longer, and the gastric and cardiac elevations are higher and narrower.

Known from the Sulu Archipelago, north of the Moluccas, Ambon, Timor and the Sunda Strait, 34–113 m deep.

Genus ***Chalaroachaeus*** DE MAN, 1902

Chalaroachaeus curvipes DE MAN, 1902

(Fig. 6)

Saneku, Kakeroma-jima I., 3 m deep; 1 ♀ (cb 3.5 mm, cl 3.3 mm); 28–V–1989; I. SOYAMA.

This species is, as already mentioned by the original author (1902) and GRIFFIN & TRANTER (1986), most characterized by the absence of a rostrum and an interantennular partition and

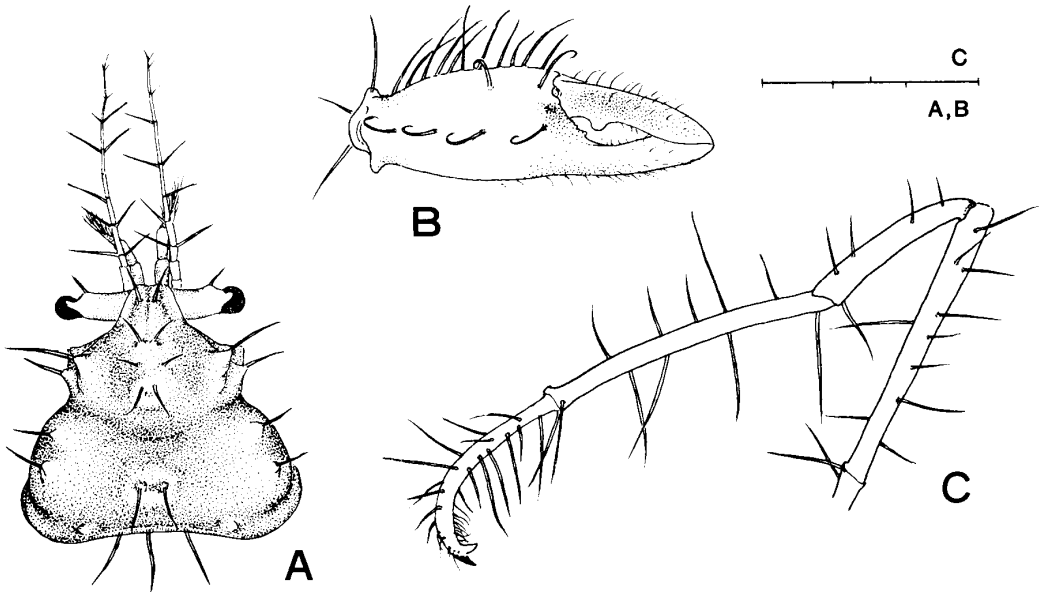

Fig. 6. *Chalaroachaeus curvipes* DE MAN, 1902, ♀ from Saneku. A, Carapace; B, right chela; C, distal four segments of ambulatory leg. Scales in mm.

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by the rudimentary supraorbital eave which covers only the base of the eyestalk. Otherwise, its basic formation of the carapace, chelipeds and ambulatory legs is just like that of the genus *Achaeus*. The following is a brief note on the female at hand.

Carapace roughly triangular, without postorbital neck, rather than pyriform; gastric, hepatic, cardiac and branchial regions convex; gastric region with a median larger tubercle and three smaller tubercles at each side, each of which is tipped with a stiff seta; hepatic region with two strong tubercles; cardiac region with two small tubercles side by side also tipped each with a seta; branchial region also with two dorsal and some marginal tubercles; a tubercle at each side of posterior margin of carapace. Ambulatory legs very long, markedly hairy; dactylus curved and armed with several teeth on its inner margin.

Previously known only from two ovigerous females, one from Ternate and the other from Salibabu Island, both in the Molucca Sea.

Genus ***Cyclax*** DANA, 1851

Cyclax spinicinctus HELLER, 1861

(Fig. 7)

Saneku, Kakeroma-jima I., 3–5 m deep; 1 young ♀ (cb excluding lateral spines, 13.0 mm, cl excluding rostral spines, 15.2 mm); 2–VI–1989; I. SOYAMA.

The genus *Cyclax* is represented by two species, *C. suborbicularis* (STIMPSON) and *C.*

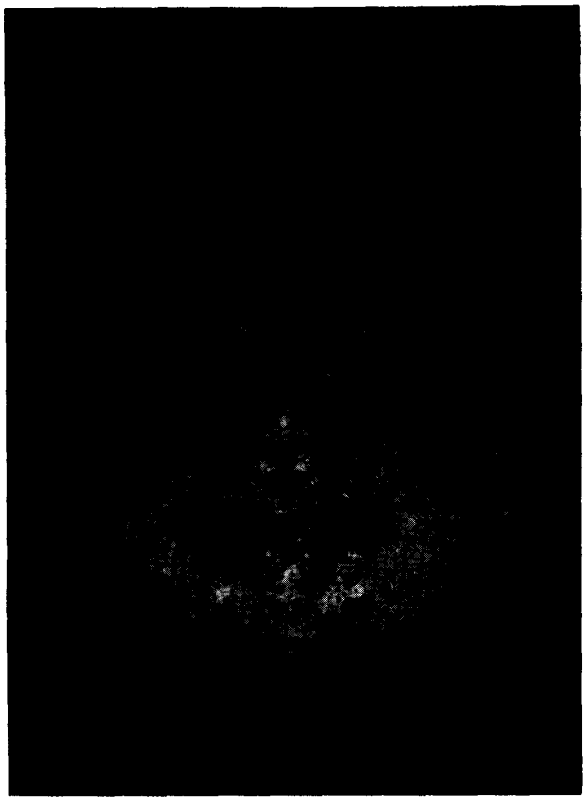

Fig. 7. *Cyclax spinicinctus* HELLER, 1861, young ♀ (cb excluding lateral spines, 13.0 mm) from Saneku.

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spinicinctus HELLER, the former of which is included in the carcinological fauna of Japan on the authority of SAKAI (1965a, 1976) on the specimens from Amami-Oshima, Yoron-jima and Ishigaki-jima Islands. The specimen at hand has, however, the much narrower carapace armed with the short, simple marginal spines. The difference in the proportion of the carapace is quite distinct, as remarked in detail by FOREST & GUINOT (1961) who finely figured their geographical distribution on the map.

Previously known from Samoa, New Caledonia, the Torres Straits, Australia, Madagascar and the Red Sea.

Genus *Hyastenus* WHITE, 1847

Hyastenus borradailei (RATHBUN, 1907)

Miura, Kakeroma-jima I.; 1 ovig. ♀ (cl exclduing rostrum, 13 mm); 15–VII–1988; M. TAKEDA.

This species has been recorded by BORRADAILE (1900, as *Hyastenus elegans* var. *tenuicornis* nov., *nec H.* (*Chorilia*) *tenuicornis* POCOCK, 1890) from Rotuma in the Ellice Islands, RATHBUN (1907, as *Halimus*) from Funafuti in the Ellice Islands, RATHBUN (1911, as *Halimus*) from Amirante in the western Indian Ocean, RATHBUN (1924) from Cape Jaubert, north-western Australia and Shanghai, China, and SAKAI (1938, 1976) from the Pacific coast of Japan. The records of occurrence are rather few, but the geographical range is rather wide in the Indo-West Pacific, ranging from Japan through the Ellice Islands and the north-western coast of Australia to the western Indian Ocean.

Hyastenus convexus MIERS, 1884

St. 23, off Doren, Oshima Passage, 35 m deep, sand and shell; 1 ovig. ♀ (cb 7.8 mm, cl in median line without rostrum, 12.2 mm); 8–VIII–1988; M. TAKEDA.

This species is rather rare, but well figured by MIERS (1884), DE MAN (1902), GRIFFIN (1974, 1976) and GRIFFIN & TRANTER (1986), and included to the Japanese carcinological fauna by the last authors, with a record from off the Goto Islands, 72 m deep. In the ovigerous female at hand the rostral spines are slender and divergent at angle of 45° from base, being slightly less than half the postrostral carapacial length. The carapace is unarmed except for two mesogastric and one protogastric blunt tubercles tipped with longer setae; the gastric region is strongly convex dorsally. The preorbital angle is sharply angulated just like the specimens from southern Japan and the Formosa Straits specially remarked by GRIFFIN & TRANTER (*op. cit*). The hiatus between the supraorbital eave and the postrobital lobe is keyhole-shaped as mentioned by them.

Known from the Indo-West Pacific from Japan through the South China Sea and the Malay Archipelago to Australia and the western Indian Ocean. Its bathymetric range is from ca. 20 to 126 m, with an exceptional record from 540–720 m deep at Kuandang Bay, Sulawesi.

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Genus *Menaethius* H. MILNE EDWARDS, 1834

Menaethius monoceros (LATREILLE, 1825)

Miura, Kakeroma-jima I.; 2 ♀♀ (cl including rostrum, 12 and 15.2 mm); 15–VII–1988; M. TAKEDA.

Known from the whole Indo-West Pacific.

Genus *Oncinopus* DE HAAN, 1839

Oncinopus neptunus ADAMS et WHITE, 1848

Surihama, Kakeroma-jima I.; 1 ovig. ♀ (cl 12.5 mm); 15–VII–1985; I. SOYAMA.

The genus *Oncinopus* has been long considered to have a monotypical representative, *O. aranea* (de Haan), until TAKEDA & MIYAKE (1969) examined the first male pleopods of many specimens. This genus is now represented by four species from the Indo-West Pacific, *O. aranea* (DE HAAN), *O. neptunus* ADAMS et WHITE, *O. angustifrons* TAKEDA et MIYAKE and *O. postillonensis* GRIFFIN et TRANTER.

This species ranges from the Ogasawara and Ryukyu Islands to Hawaii, and to Australia, East Africa and the Red Sea, 50–90 m deep. The previous record of occurrence in the Ryukyu Islands is from off Iriomote Island (TAKEDA, 1977b).

Genus *Tylocarcinus* MIERS, 1879

Tylocarcinus sinensis DAI, YANG, FENG et SONG, 1978

(Fig. 8A)

Saneku, Kakeroma-jima I., 4 m deep; 1 ♂ (cl including rostrum, 20 mm, cb 10 mm); 12–V–1989; I. SOYAMA.

In the specimen at hand the rostral length from the tip to base of the supraorbital tooth is 6.7 mm, and the length of the carapace proper is 13.3 mm. The rostrum is therefore just 1/2 as long as the carapace. In a male of almost same size from Ishigaki-jima Island (NSMT-Cr 6792) identified as *Tylocarcinus styx* (HERBST), the rostral length is 5.0 mm, and the length of the carapcae proper is 18.7 mm. This means that the rostrum of *T. styx* is slightly more than 1/3 as long as the carapace, but distinctly less than half the carapace length. This difference is quite apparent in the specimens (NSMT) from the Ogasawara and Palau Islands identified as *T. styx* and also in the published figures and photograph of *T. styx* (PAULSON, 1875 (1962); SAKAI, 1938, 1976; TAKEDA, 1973b). The arrangement of the dorsal nodules is almost same in both species, though in the present species the nodules seem to be more or less tuberculated. GRIFFIN & TRANTER (1986) who examined many specimens of *T. styx* mentioned that none of the specimens has the ambulatory meri as weakly tuberculate as those figured by DAI *et al.* (1978) for *T. sinensis*. In the specimen at hand the armature of the ambularoy meri is not so strong as in the typical *T. styx*, but there are some warty granu-

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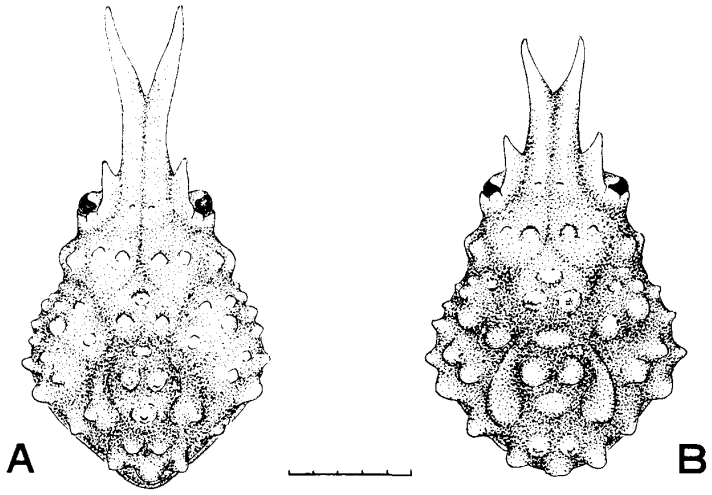

Fig. 8. *Tylocarcinus sinensis* DAI *et al.*, 1978, ♂ (A) from Saneku, and *T. styx* (HERBST, 1803), ♂ (B) from Ishigaki-jima Island. Scale in mm.

les. The male first pleopod figured by the original authors and also examined at present is very close to that of *T. styx* figured by GUINOT (1962) and TAKEDA (1973b)

Originally reported from the Xisha Islands.

Family Parthenopidae

Genus ***Aulacolambrus*** PAULSON, 1875

Aulacolambrus sibogae FLIPSE, 1930

Oshima Passage, 25–40 m deep; 1 ♂ (cb excluding epibranchial tubercles, 7.7 mm), 1 ♀ (cb 9.5 mm); 29–VI–1970; Kagoshima Univ.

St. 24, off Doren, Oshima Passage, 40 m deep, sand and shell; 1 juv. (cb 6.5 mm); 8–VIII–1988; M. TAKEDA.

The adult male at hand is generally close to *Aulacolambrus hoplonotus* (ADAMS et WHITE) which is variable especially in the form of the rostrum and in the granulation of the dorsal surface. In this specimen, however, the rostrum is well developed and protruded forward, with a median tip, just like the original figure of this species by FLIPSE (1930), and the frontorbital region is distinctly produced and constricted at the neck somewhat like in the case of *A. diacanthus* (DE HAAN) which is less tuberculated on the carapace, with shorter epibranchial teeth, and has the large tubercles not alternated by small ones on the outer margin of the palm. There is no problem in referring this specimen to *A. sibogae* FLIPSE except for the proportional difference of the carapace. Of the type specimens, 2 ♂♂, 3 ♀♀, 1 ovig. ♀, the largest male is 7.75 and 7 mm in cl and cb, respectively, the largest female is 12.75 and 11.5 mm, and the ovigerous female is 10 and 9.25 mm. The original author thus concluded that the carapace of this species is slightly longer than broad. This measurements may indicate that the carapace is subequal in its breadth and length, or sensibly longer than broad. The following is the diagnostic characters.

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Carapace rounded triangular, with a strong epibranchial tubercle at each side; submedian longitudinal furrow very deep at each side, isolating branchial region from gastric and cardiac regions; each region rather uniformly covered with wart-like tubercles which are again covered with minute granules; of tubercles, one of each protogastric region, one of mesogastric region, two of each branchial region are larger than the others; epibranchial tubercle long and weakly curved forward; posterolateral margin of carapace with a tubercle of good size which is much smaller than the epibranchial tubercle. Chelipeds long as usual; posterior margin of merus with four flattened tubercles, and outer margin of palm with alternating five large and four small tubercles. Ambulatory legs comparatively long, fringed with long hairs.

This species is known only by the original description based on the specimens from east of Ceram and southwest of Timor, ca. 20 m deep. It is noted at present that a female from the Ogasawara Islands, 52 m deep, reported by TAKEDA (1977b) as *A. diacanthus* was re-examined and is in reality referable to this species.

Genus ***Calvactaea*** WARD, 1933

Calvactaea tumida WARD, 1933

St. 23, off Doren, Oshima Passage, 35 m deep, sand and shell; 1 juv. (cb 6.3 mm); 8–VIII–1988; M. TAKEDA.

Known from Japan and Australia, living commensally with alcyonarians at the depth of 10–30 m.

Genus ***Parthenope*** WEBER, 1795

Parthenope longimanus (LINNAEUS, 1764)

Oshima Passage, 25–40 m deep; 1 young ♀ (cb 14.5 mm); 29–VI–1970; Kagoshima Univ.

Known from the Indo-West Pacific from Japan through the Malay Archipelago and Australia to the western Indian Ocean, 60–70 m deep.

Family Eumedonidae

Genus ***Ceratocarcinus*** WHITE, 1847

Ceratocarcinus longimanus WHITE, 1847

(Fig. 9B)

Oshima Passage, 25–40 m deep; 1 ♀ (cb including lateral tubercles, 7.2 mm); 29–VI–1970; Kagoshima Univ.

This species has been described and figured in detail by SERÈNE *et al.* (1958), with which the present specimen agrees quite well. In six species of the genus *Ceratocarcinus*, this species is generally close to *C. dilatatus* H. MILNE EDWARDS and *C. intermedius* ZEHNTNER, but distinguished from the former by having the longer palm and from the latter by having the epibranchial tubercle almost touched with the posterior end of the anterolateral margin.

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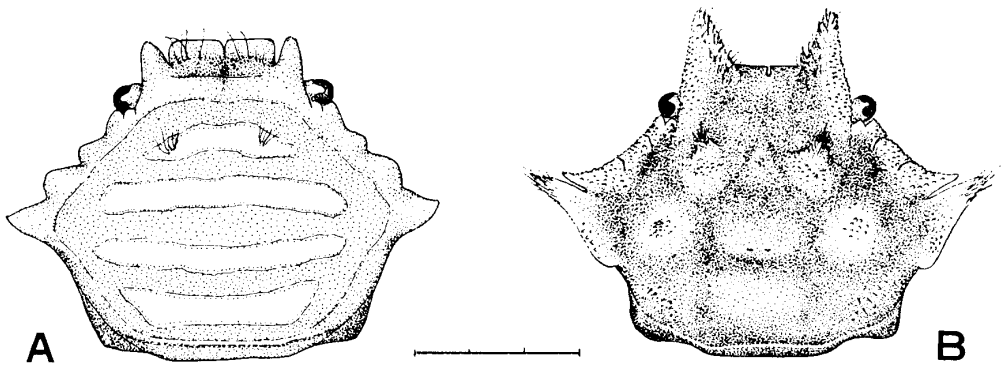

Fig. 9. *Harrovia albolineata* ADAMS et WHITE, 1848, ♂ (A) from St. 22, and *Ceratocarcinus longimanus* WHITE, 1847, ♀ (B) from the Oshima Passage. Scale in mm.

This species is rare and has been previously known only from the Malacca, the Banda Sea and Viet Nam, so that the present occurrence is worth noting. The following is the diagnostic characters.

Carapace wider than long, hexagonal; each protogastric region with a conical tubercle, and mesogastric region with a transverse mound; each branchial region with a conical tubercle which is slightly smaller than protogastric tubercles; cardiac region convex as a whole, roughened with granules. Front with a stout high tubercle at each side. Anterolateral margin strongly divergent, very shallowly concave, raised as a whole, with thick minute granules and two traces of notches; posterior end almost adjacent to epibranchial tooth, leaving a linerar slit. Chelipeds about twice as long as carapace; palm widened distally, with two longitudinal, wide and deep furrows each on outer and inner surfaces.

Commensal with comatulid.

Genus ***Harrovia*** ADAMS et WHITE, 1848

Harrovia albolineata ADAMS et WHITE, 1848

(Fig. 9A)

St 22, Nominoura, Oshima Passage, 45 m deep, sand and shell; 1 ♂ (cb 8.0 mm); 6–VIII–1988; M. TAKEDA.

The specimen at hand obtained together with a small comatulid agrees well with the descriptions and figures given by the original authors (1848) and SERÈNE *et al.* (1958). The following is a brief note on the specimen at hand recorded as new to the carcinological fauna of Japan.

Dorsal surface of carapace deep brick red, with four transverse bands of white, being fringed with white along whole margin. Carapace hexagonal, flattened for its most part of dorsal surface, with ill-defined regions. Front almost transverse, with a small median notch. Inner angle of supraorbital border more or less tuberculated, only slightly protruded forward behind frontal margin. Anterolateral border strongly divergent, divided into three subequal lobes by two small notches, isolated by a triangular notch from epibranchial tooth which is also somewhat tuberculated and sharply pointed. Chelipeds stout, slightly more than twice

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the length of carapace.

The previous records are based on the specimens from the Philippines, Borneo, Hong Kong, Viet Nam, Singapore, and the Gulf of Manaar between Sri Lanka and India.

Family Corystidae

Genus *Jonas* JACQUINOT, 1853

Jonas distincta (DE HAAN, 1835)

St. 3, between Koniya and Shiraki-zaki, Oshima Passage, 55 m deep, gravel and shell; 1 ♀ (cl including rostrum, 20.2 mm); 4–VIII–1988; M. TAKEDA.

Known only from Japanese waters (Sagami Bay to off Yamaguchi Prefecture along the coasts of Kyushu).

Family Portunidae

Genus *Charybdis* DE HAAN, 1833

Charybdis truncata (FABRICIUS, 1798)

St. 22, Nominoura, Oshima Passage, 45 m deep, sand and shell; 1 young ♀ (cb 16.7 mm); 6–VIII–1988; M. TAKEDA.

Known from the Indo-West Pacific from Japan through the Malay Archipelago and Australia to India and Madagascar, 10–50 m deep.

Genus *Lissocarcinus* ADAMS et WHITE, 1848

Lissocarcinus laevis MIERS, 1886

St. 3, between Koniya and Shiraki-zaki, Oshima Passage, 55 m deep, gravel and shell; 1 ♂ (cb 10.2 mm); 4–VIII–1988; M. TAKEDA.

Known from the whole Indo-West Pacific, 30–85 m deep.

Genus *Portunus* WEBER, 1795

Portunus haani (STIMPSON, 1858)

St. 2, northwest of Shiraki-zaki, Oshima Passage, 50 m deep, sand; 1 juv. (cb including lateral spines, ca. 21 mm); 4–VIII–1988; M. TAKEDA. St. 25, off Doren, Oshima Passage, 35 m deep, sand and shell; 2 juv. (cb 7.0 and 19.4 mm); 8–VIII–1988; M. TAKEDA. St. 26, off Doren, Oshima Passage, 30 m deep, sand and shell; 1 juv. (cb 21.8 mm); 8–VIII–1988; M. TAKEDA.

STEPHENSON & COOK (1973) studied the *Portunus gladiator* complex and resolved the

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confusion over *P. gladiator* FABRICIUS and some related species. According to them, the species normally regarded as *P. gladiator* FABRICIUS is now known as *P. haani* (STIMPSON), because the species first named *Cancer gladiator* by FABRICIUS is synonymized with *P. sanguinolentus* (HERBST). Also, *P. pseudoargentatus* STEPHENSON is a synonym of *P. haani*, and *P. gladiator sensu* STEPHENSON & CAMPBELL (1959) is a new species described by them, *P. australiensis*.

Known from the Indo-West Pacific from Japan to Australia, and then through India to Mauritius and Madagascar, 30–100 m deep.

Portunus tenuipes (DE HAAN, 1835)

St. 22, Nominoura, Oshima Passage, 45 m deep, sand and shell; 2 young ♀♀ (cb including lateral teeth, 23.5 and 29.3 mm); 6–VIII–1988; M. TAKEDA. St. 24, off Doren, Oshima Passage, 40 m deep, sand and shell; 1 ♂ (cb 29.5 mm); 8–VIII–1988; M. TAKEDA.

Known from the West Pacific from Japan to Australia, and also from the Andamans. Its bathymetric range is from 15 to 35 m.

Genus ***Thalamita*** LATREILLE, 1829

Thalamita admete (HERBST, 1803)

St. 13, between Kuro-saki and Machiami-zaki, Oshima Passage, 40 m deep, sand and shell; 1 ♂ (cb 14.4 mm); 5–VIII–1988; M. TAKEDA.

Miura, Kakeroma-jima I.; 3 ♂♂ (cb. 11.5–20.3 mm), 2 ♀♀ (cb 17.5 and 18.0 mm); 16–VII–1988; M. TAKEDA.

Known from the whole Indo-West Pacific, mostly littoral zone.

Thalamita corrugata STEPHENSON et REES, 1961

(Fig. 10A)

Miura, Kakeroma-jima I.; 2 ♂♂ (cb 8.2 and 13.0 mm); 15–VII–1988; M. TAKEDA.

The carapace of the smaller specimen is somewhat damaged, but many transverse lines of beaded granules are distinct. In general formation of the carapace, chelipeds and ambulatory legs is, as noted by the original authors, very close to that of *T. cooperi* BORRADAILE from the Laccadive Archipelago (BORRADAILE, 1902a; SANKARANKUTTY, 1961). This species is, however, most readily distinguished from it by the ornamentation of the carapace.

Carapace evenly convex in both directions, wholly covered with a short soft tomentum and some tufts of longish plumose hairs; each frontal region weakly convex, marked with a blunt ridge; each protogastric region provided with a weakly sinuate linear ridge; mesogastric ridge almost transverse for its most part, without a median interruption, being convex forward near its lateral end; epibranchial ridge almost transverse on mesogastric region,

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weakly convex forward on branchial region. Cardiac ridge separated from mesobranchial ridge at each side. Front truncated, composed of four lobes; median pair much wider than lateral which is a rounded lobe with convex outer margin; each lobe isolated from each other by a deep slit. Basal antennal segment armed with a high crest bordered with minute granules. Anterolateral margin cut into four subequal sharp teeth. Chelipeds wholly covered with squamiform sculpture; merus armed with three spines on its inner upper margin and with one at its distal part of inner lower margin; carpus armed with three small spines on its distal part of outer surface in addition to a sharp spine at its inner angle; palm armed

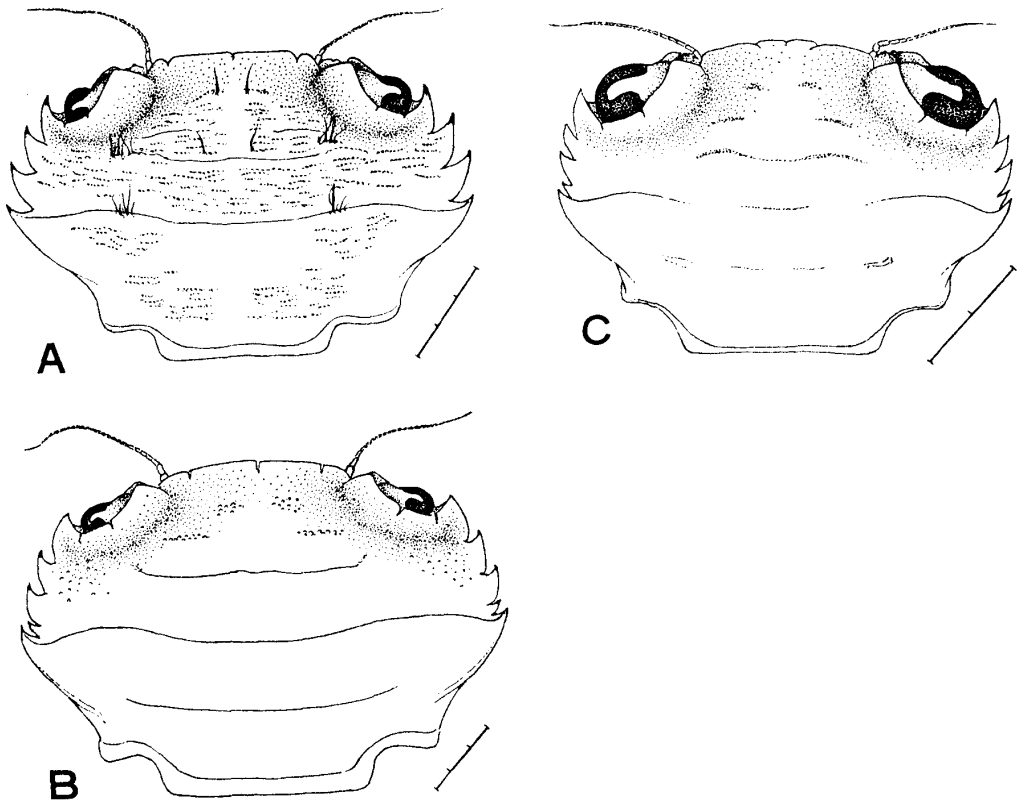

Fig. 10. *Thalamita corrugata* STEPHENSON et REES, 1961, ♂ (A) from Miura; *T. demani* NOBILI, 1905, ovig. ♀ (B) from Miura; *T. sexlobata* MIERS, 1886, young ♀ (C) from St. 15. Scales in mm.

with two and three sharp spines on its upper inner and outer margins, respectively; two longitudinal ridges extending onto immovable finger. Male abdomen tapers rapidly toward tip from median part of sixth segment, so that the lateral margin of the sixth segment is more or less convex or rather angulated. Male first pleopod regularly curved outward, slender, bearing stout bristles.

Previously known from the Gilbert Islands (STEPHENSON & REES, 1961), Mombasa and Sangihe I., Indonesia (STEPHENSON, 1972), the Tuamotu Islands (STEPHENSON & REES, 1967), and Queensland (STEPHENSON & HUDSON, 1957, as *T. cooperi*).

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Thalamita demani Nobili, 1905

(Fig. 10B)

Miura, Kakeroma-jima I.; 1 ♀ (cb. 13.0 mm), 2 ovig. ♀♀ (cb 16.4 and 16.8 mm); 16–VII–1988; M. Takeda.

The specimens at hand agree well with the figures given by Crosnier (1962) based on the material from Madagascar, and also with the figures of *Thalamita trilineata* described by Stephenson & Hudson (1957) and later recorded by Stephenson (1961). The following is a brief note on the specimens at hand.

Carapace strongly convex dorsally, provided with three transverse linear ridges; median ridge connects last anterolateral teeth of both sides; anterior one traverses gastric regions, and posterior one on cardiac region and inner parts of branchial regions of both sides; epigastric, anterior protogastric and anterior branchial regions minutely granulated. Front weakly convex as a whole, four-lobed, with a median and two lateral narrow interruptions. Of five anterolateral teeth the fourth is rudimental.

The distribution in the Indo-West Pacific is wide, but previously known only from Yoron-jima Island, Atej, Queensland, Madagascar and the Red Sea, without intervening localities. The northern limit was further extended north to Amami-Oshima Island.

Thalamita oculea Alcock, 1899

St. 19, near Seso, Oshima Passage, 25 m deep, coral and rock; 1 ♀ (cb 10.0 mm); 6–VIII–1988; M. Takeda. St. 20, west side of Nominoura, Oshima Pasage, 45 m deep, coarse sand and shell; 1 ♂ (cb 6.4 mm), 1 ♀ (cb 8.9 mm); 6–VIII–1988; M. Takeda.

This species is known from Sagami Bay, Japan, in the West Pacific (Sakai, 1939, 1976) and from the Andamans, Sri Lanka, India, Amirante, Saya de Malha, the Seychelles and Madagascar in the Indian Ocean (Alcock, 1899; Rathbun, 1911; Crosnier, 1962). Its bathymetric range is from 35 to 50 m.

Thalamita parvidens (Rathbun, 1907)

St. 22, Nominoura, Oshima Passage, 45 m deep, sand and shell; 1 ovig. ♀ (cb 10.3 mm); 6–VIII–1988; M. Takeda.

Known from Japan (Sakai, 1939, 1976), the Carolines (Rathbun, 1907), Western Australia (Stephenson, 1961) and Madagascar (Crosnier, 1962), 10–30 m deep.

Thalamita quadrilobata Miers, 1884

Shiba, Kakeroma-jima I., 4 m deep; 1 ♂ (cb including lateral teeth, 27.2 mm); 30–IX–1988; I. Soyama.

This species has been well described and figured by Miers (1884), Alcock (1899), Stephenson & Hudson (1957) and Sakai (1976). As already noted by them, this species is

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close to *T. admete* (HERBST) which is common in the whole tropical Indo-West Pacific, but most readily distinguished from it by having three sharp spines on the antennal basal segment instead of nine or ten spinules. This species is known from Yoron-jima and Ishigaki-jima Islands in the Ryukyu Islands, the Gilbert Islands, Australia, the Andamans and the Seychelles. The geographical range was extended further north to Amami-Oshima Island.

Thalamita sexlobata MIERS, 1886

(Fig. 10C)

St. 15, between Seto-zaki and Hyo-kojima Islet, Oshima Passage, 70 m deep, sand and shell; 1 young ♀ (cb 7.2 mm); 5–VIII–1988; M. TAKEDA.

This species has been well described and figured by STEPHENSON & HUDSON (1957) and CROSNIER (1962), being characterized by having the four-lobed front; the median lobes are apparently narrower than the laterals, slightly more than half width of the laterals and projecting slightly beyond them.

Previously known from Tongataba (MIERS, 1886), Tuticorin (HENDERSON, 1893) the Andamans (ALCOCK, 1899), the Persian Gulf (ALCOCK, 1899; STEPHENSEN, 1945), the Gulf of Manaar (LAURIE, 1906), Queensland (STEPHENSON & HUDSON, 1957) and Madagascar (CROSNIER, 1962). The Australian authors mentioned that SAKAI's (1939) figure of the male pleopod of *T. poissonii* is evidently refers to the present species, but this species is very different from *T. sexlobata* in having two-lobed front. SAKAI (1976) did not mention about this problem, so that at present it may be better to record this species as new to the Japanese carcinological fauna. Its bathymetric range is from 15 to 30 m deep.

Thalamita stimpsoni A. MILNE EDWARDS, 1861

Miura, Kakeroma-jima I.; 1 juv. (cb 11.4 mm); 16–VII–1988; M. TAKEDA.

Known from the Indo-West Pacific ranging from the northern Ryukyu Islands to Australia, and also to the Red Sea through the coast of India.

Thalamita wakensis EDMONDSON, 1925

Miura, Kakeroma-jima I.; 3 ♂♂ (cb 12.5–15.0 mm), 3 ♀♀ (9.0–15.5 mm), 4 ovig. ♀♀ (cb 10.3–15.5 mm); 16–VII–1988; M. TAKEDA.

This species is most characteristic in having the overlapping median and submedian frontal lobes.

As summerized by TAKEDA (1977a), this species was originally reported from Wake Island and subsequently recorded from Japanese waters ranging from Tosa Bay to Amami-Oshima Island.

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Family Xanthidae

Genus *Actaea* DE HAAN, 1833

Actaea perspinosa BORRADAILE, 1902

(Pl. 1B)

Oshima Passage, 25–40 m deep; 1 ♂ (cb including lateral spines, 8.0 mm); 29–VI–1970; Kagoshima Univ.

St. 13, between Kuro-saki and Machiami-zaki, Oshima Passage, 40 m deep, sand and shell; 1 juv. (cb 4.8 mm); 6–VIII–1988; M. TAKEDA.

This species has hitherto been known only from the Maldive Islands, 25 fms deep (BORRADAILE, 1902b), the Seychelles, 39 fms deep (RATHBUN, 1911), and the Bonin (=Ogasawara) Islands (ODHNER, 1925). The type specimen with 5.5 mm in cb was considered to be young by ODHNER (1925) who recorded, with a question mark, a female having the carapace of 20 mm breadth. The specimen from the Seychelles is a juvenile with 2.8 mm in cb and recorded without any comment, so that this record is not useful for furhter consideration. The larger specimen at hand seems to be adult due to the well developed pleopod. It is much smaller than the female from the Ogasawara Islands, but quite well agrees with the photographs given by ODHNER (*op. cit.*) which were later reproduced by GUINOT (1976). In the follwoing lines the diagnostic features were briefly described.

Carapace transversely oval, evenly convex in both directions; regions isolated from each other by distinct linear furrows; gastric and branchial regions studded with conical granules of good size, which become taller near the frontal and anterolateral margins. Frontal margin divided into two convex lobes by a median U-shaped sinus; each lobe weakly convex, armed with some tubercles, shallowly concave near its lateral end which is armed with a tubercle. Anterolateral margin with three teeth behind external orbital angle, first three of which are armed each with two or three tubercles. Chelipeds of good size, thiclky covered with tubercles; movable finger with four teeth, and immovable finger with five; tips not pointed. Anterior margin of each ambulatory merus with some tubercles, and anterior margins and upper surfaces of carpi, propodi and dactyli with dense spiniform tubercles.

Actaea pura STIMPSON, 1858

Oshima Passage, 25–40 m deep; 1 ♀ (cb 16.3 mm), 3 young ♀♀ (cb 10.0–10.5 mm); 29–VI–1970; Kagoshima Univ.

Saneku, Kakeroma-jima I., 3 m deep; 1 ♀ (12.3 mm); 1–X–1988; I. SOYAMA.

This species has been treated as a synonym of *Actaea savignyi* (H. MILNE EDWARDS), but was resurrected by GUINOT (1976) who gave a new name, *A. semblatae*, to the specimens covered with sharp granules of coarse appearance from deeper waters around Japan. The present specimens belong to the shallow water form having rounded smooth granules except for those on the anterior margins of the ambulatory meri.

Probably resticted to the West Pacific. Many records as *A. savignyi* (H. MILNE ED-

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WARDS) still remain uncertain.

Genus *Calmania* LAURIE, 1906

Calmania dahli (BALSS, 1933), comb. nov.

(Fig. 11)

Saneku, Kakeroma-jima I., 3–5 m deep; 1 ♀ (cb 8.4 mm, cl 6.5 mm); 24–V–1989; I. SOYAMA.

As suggested, but not studied, by SERÈNE & UMALI (1972), the generic differentiation of the genus *Ralumia* BALSS from the genus *Calmania* LAURIE seems to be insignificant. They tentatively retained *Ralumia dahli* BALSS, the type species known only by the original description, in the genus in question as distinct from the genus *Calmania*, but transferred the second species, *R. balssi* SAKAI from Japan, to *Calmania*. Contrary to this opinion, TAKEDA (1973a) considered that the genus *Calmania* is monotypically represented by *C. prima* LAURIE in which the front is horizontal and fringed with long hairs on the margin unlike the deflexed front with

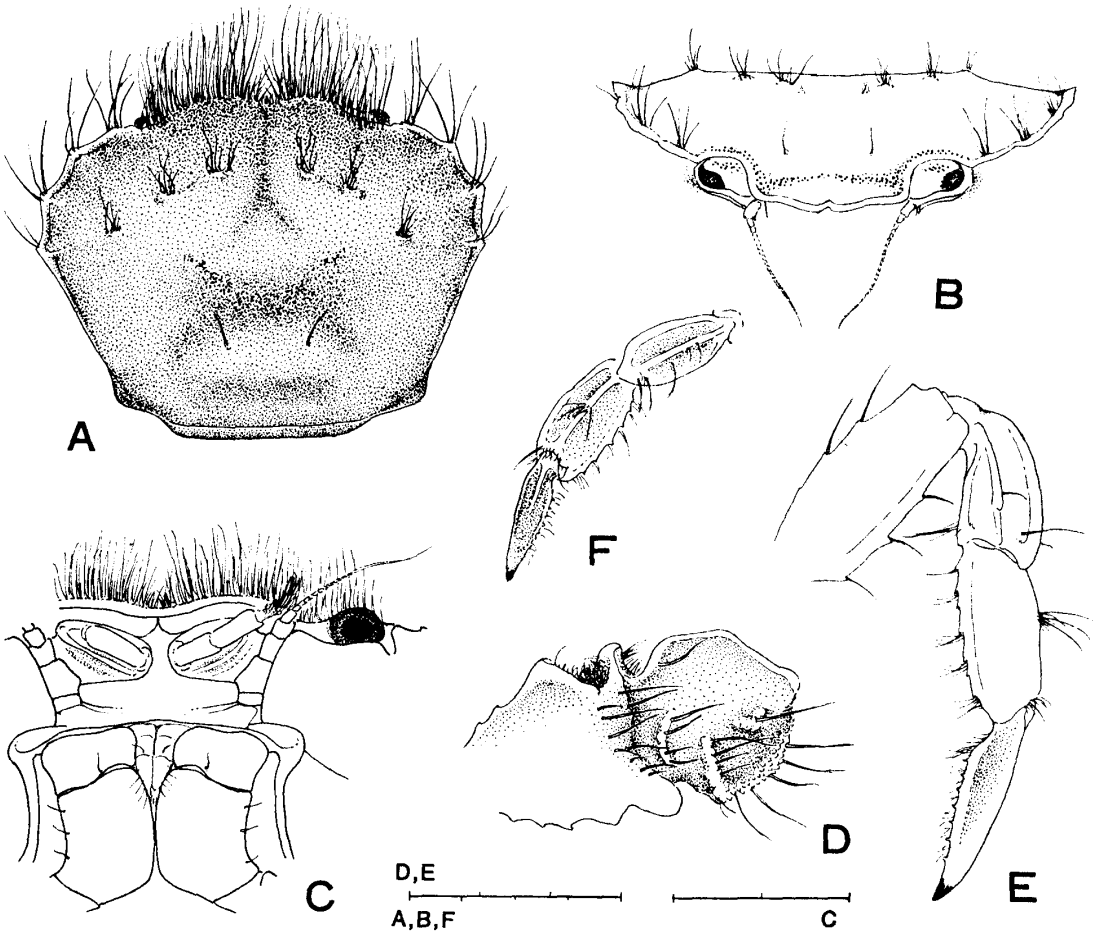

Fig. 11. *Calmania dahli* (BALSS, 1933), comb. nov., ♀ from Saneku. A, Carapace; B, frontorbital region; C, antennal and oral region; D, merus and carpus of right cheliped in outer view; E, ambulatory leg; F, distal three segments of the same in anterior view. Scales in mm.

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a transverse row of hairs above the magin in the other species. Following this opinion, TAKEDA (1977a) changed the systematic position of *Calmania simodaensis* Sakai to the genus *Ralumia*.

As rightly noted by SERÈNE & UMALI (*op. cit.*), the most important and probably sole character that may justify the generic separation is the quite narrow third maxillipeds leaving a wide gape between them in the genus *Ralumia* figured by the original author. On examination of a female at hand referable to *R. dahli* with little doubt, it was concluded that the original figure is only schematic and quite inaccurate, and that there is not reason to retain the genus *Ralumia*. The genus *Calmania* is thus represented by the following five species, viz., *C. prima* LAURIE, 1906 (type species) from Sri Lanka and Japan, 30–85 m deep, *C. sculptimana* TESCH, 1918 from west coast of Flores and northwest of the Kei Islands, 54–90 m deep, *C. dahli* (BALSS, 1933) from New Pommern, *C. balssi* (SAKAI, 1935) from Japan and the East and South China Seas, 35–190 m deep, and *C. simodaensis* SAKAI, 1939 from Japan and the Philippines, from rocky beach to 15 m deep.

The female at hand agrees well with the original description. Its short note is given below.

Carapace slightly wider than long, bent obliquely downward at anterior 1/3 in front of gastric region; protogastric regions of both sides deeply separated from each other by a median longitudinal furrow, each being provided with two small tubercles, and branchial region with one, all being tipped with some stiff setae; cardiac region not convex, but rather prominent, with two low prominences. Anterolateral margin sharply edged, shallowly cut into three angulated teeth. Chelipeds characteristic and basically same with those of the congeners; upper margin of merus sharply crested, angulated at subterminal part, with a deep cavity at distal part; outer lower margin of merus with three or four teeth; inner upper margin and distal margin of carpus crested; palm compressed, crested on upper margin, granulated on outer surface, with prominent longitudinal ridges of granules of good size; fingers leave a gape proximally. Anterior margins of ambulatory legs also crested.

Genus ***Chlorodiella*** RATHBUN, 1897

Chlorodiella laevissima (DANA, 1852)

St. 13, between Kuro-saki and Machiami-zaki, Oshima Passage, 40 m deep, sand and shell; 1 ♂ (cb 4.3 mm); 6–VIII–1988; M. Takeda.

Widely distributed in the Indo-West Pacific from Japan and Hawaii to Mauritius and Madagascar, ranging from coral reef to shallow water.

Genus ***Gaillardiellus*** GUINOT, 1976

Gaillardiellus rueppelli (KRAUSS, 1843)

Oshima Passage, 25–40 m deep; 1 ♂ (cb 12.3 mm), 1 ♀ (cb 12.5 mm); 29–VI–1970;

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This species is one of four species referred to the genus *Gaillardiellus* by GUINOT (1976), and most popular and widely distributed in the Indo-West Pacific waters from Japan to South Africa. The carapace is narrower, more strongly convex fore and aft than in the closest congener, *G. orientalis* (ODHNER), being thickly covered with stiff setae, without tufts of soft plumose hairs. Its bathymetric records are from 15 to 120 m.

Genus ***Lachnopodus*** STIMPSON, 1858

Lachnopodus subacutus (STIMPSON, 1858)

Saneku, Kakeroma-jima I., 3–5 m deep; 1 ♀ (cb 15.3 mm); 24–V–1989; I. SOYAMA.

This glossy species having the spinulated ambulatory meri is readily distinguished from the closest congener, *Lachnopodus bidentatus* (A. MILNE EDWARDS), due to the important contribution by FOREST & GUINOT (1961). In the present species the carapace is wider, the last two anterolateral teeth are obtuse, the shallow oblique furrow between the posterolateral regions is absent, and the male first pleopod bears no long hairs.

Widely distributed in the whole Indo-West Pacific.

Genus ***Liomera*** DANA, 1851

Liomera caelata (ODHNER, 1925)

St. 13, between Kuro-saki and Machiami-zaki, Oshima Passage, 40 m deep, sand and shell; 2 ♂♂ (cb 6.0 and 6.6 mm); 5–VIII–1988; M. TAKEDA. St. 14, between Koniya and Shiraki-zaki, Oshima Passage, 45 m deep, sand and shell; 2 juv. (cb 3.2 and 4.3 mm); 5–VIII–1988; M. TAKEDA.

Restricted to the West Pacific from the Kii Peninsula, Japan southward to the Torres Straits.

Liomera erythra (LANCHESTER, 1900)

St. 13, between Kuro-saki and Machiami-zaki, Oshima Passage, 40 m deep, sand and shell; 1 juv. (cb 6.2 mm); 5–VIII–1988; M. TAKEDA.

Restricted to the West Pacific from Sagami Bay, Japan southward to Singapore and the Malay Archipelago, 5–15 m deep.

Liomera rubra (A. MILNE EDWARDS, 1865)

Oshima Passage, 40 m deep; 1 ovig. ♀ (cb 10.7 mm); 29–VI–1970; Kagoshima Univ.

The carapace, chelipeds and ambulatory legs are uniformly covered with fine granules; the dorsal surface of the carapace is evenly convex as a whole and divided into regions by

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linear furrows; the protogastric region (2 M) is wholly divided into two, its inner lobule being confluent with the epigastric region (1 M). The areolation of the carapace is somewhat similar to that of *L. margaritata* (A. MILNE EDWARDS) from the whole Indo-West Pacific, but the third and fourth anterolateral teeth are prominent and obtusely angulated.

The records of occurrence are rather few, but this species is widely distributed in the whole Indo-West Pacific. In Japanese waters this species has been recorded from the Ryukyu Islands, ranging northward to Yoron Island. The northern limit was at present changed to Amami-Oshima Island.

Genus ***Lophozozymus*** A. MILNE EDWARDS, 1863

Lophozozymus pulchellus A. MILNE EDWARDS, 1867

Saneku, Kakeroma-jima I., 3–5 m deep; 1 ♀ (cb 12.5 mm); 4–VI–1989; I. SOYAMA.

This beautiful species with dark vermilion reticulate pattern on the carapace is widely distributed in the whole Indo-West Pacific. In Japanese waters this species has hitherto been known from Yoron-jima, Ishigaki-jima and Taketomi-jima Islands in the Ryukyu Islands, and thus its norhtern limit was extended north to Amami-Oshima Island.

Genus ***Lybia*** H. MILNE EDWARDS, 1834

Lybia caestifera (ALCOCK, 1898)

St. 13, between Kuro-saki and Machiami-zaki, Oshima Passage, 40 m deep, sand and shell; 1 juv. (cb 3.9 mm); 5–VIII–1988; M. TAKEDA.

This female juvenile specimen carries a tiny sea anemone in each chela. In Japan this species has hitherto been recorded from Izu-Oshima. The overseas localities are Hawaii, Tahiti, Sri Lanka, Mauritius and the Red Sea. According to SAKAI (1967), the record from the Red Sea by KLUNZINGER (1913) is to be referred to that of *L. australiensis* (WARD). The other records except for the type locality, Sri Lanka, must be confirmed.

Lybia tessellata (LATREILLE, 1812)

Eniya Islet, 5 m deep; 2 ♂♂ (cb 8.3 and 9.6 mm), 2 ♀♀ (cb 6.6 and 8.8 mm), 3 ovig. ♀♀ (cb 8.9, 8.9 and 9.0 mm); 30–IX–1988; I. SOYAMA. Saneku, Kakeroma-jima I., 3–7 m deep; 6 ♂♂ (cb 6.7–10.2 mm), 3 ♀♀ (cb 6.3–9.0 mm); 30–V–1989; I. SOYAMA.

All the specimens carry a sea anemone between fingers of each chela. In addition to the above 16 specimens is an abnormal female infected with bopyrid parasites; the branchial chambers of both sides are abruptly swollen and deformed, the greatest breadth of the carapace being 14.8 mm.

Known from the whole Indo-West Pacific.

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Genus *Metaxanthops* SERÈNE, 1984

Metaxanthops acutus SERÈNE, 1984

(Pl. 1C)

Miura, Kakeroma-jima I., 1 ♀ (cb 9.9 mm); 15–VII–1988; M. TAKEDA.

There is no problem in the identification of the female at hand as this rare species known only by the original description based on one male from Nosy Bay, Madagascar and one female from Anouan, the Comores. An additoinal pair from the coral reef at Kuro-shima Island in the southern Ryukyu Islands was examined for comparision. The specimens from the Ryukyu Islands agree well with the original description. The diagnosis is given in the following lines.

Carapace rather narrow, evenly convex as a whole, nearly flattened along frontal and anterolateral margins, nearly smooth, but not shining; areolae distinct, evenly convex, with shallow interregional furrows. Front protruded forward beyond orbit, with two prominent lobes. Anterolateral margin divergent, with three triangular teeth behind external orbital lobe; last tooth followed by a much smaller tuberculate tooth on its posterior slope. Chelipeds heavy, unequal; carpus bluntly carinated above, with some small compressed tubercles; palm also carinated above, with two compressed tubercles near articulation with carpus; dark color of immovable finger extended back onto large part of palm. Ambulatory legs slender, sparsely hairy; carpus with a shallow longitudinal furrow on its upper surface. Male first pleopod curved, with long plumose hairs at its subapical part.

This species is a monotypical representative of the genus. Previously known only from the intertidal zone of Madagascar and the Comore Islands. The occurrence in the Ryukyu Islands without intervening localities is worth noting.

Genus *Miersiella* GUINOT, 1967

Miersiella cavifrons sp. nov.

(Fig. 12, 13)

St. 20, west side of Nominoura, Oshima Passage, 45 m deep, coarse sand and shell; 1 ♀ (cb 8.7 mm, cl 5.7 mm), holotype; 6–VIII–1988; M. TAKEDA.

Off Kushimoto, Kii Penin., 40–70 m deep; 1 ♂ (cb 5.4 mm, cl 3.8 mm), allotype; 5–IX–1979; S. NAGAI.

Description of holotype. Carapace wider than long, hexagonal rather than quadrate, fairly convex in longitudinal direction; dorsal surface divided into regions by linear, wide and smooth furrows; regions covered with minute granules, most of which are uniformly dispersed and neither sharp nor rounded; frontal region large, divided into two by a median longitudinal furrow; epigastric region small, but distinct, with a short transverse row of granules along its anterior margin, being fairly distinctly isolated from frontal region by a transverse furrow and very indistinctly from inner part of protogastric region; anterior part of protogastric region imperfectly divided into two for a short way by a longitudinal furrow

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from outside of epigastric region; anterior part of mesogastric region narrow, extending just to a level of median part of epigastric region; cardiac region large, flattened, with microscopical granules; epibranchial region with two prominences which are composed of several granules, viz., one outside of protogastric region and the other inside of anterolateral border between first and second teeth; a transverse region between second anterolateral tooth and

Fig. 12. *Miersiella cavifrons* sp. nov., holotype ♀ (cb 8.7 mm) from St. 20.

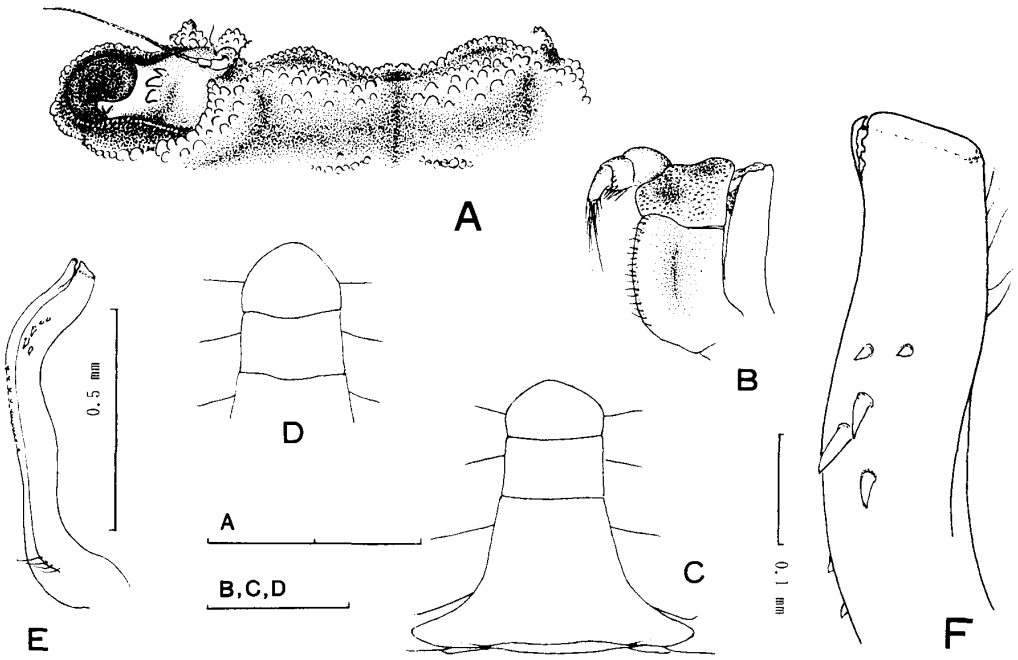

Fig. 13. *Miersiella cavifrons* sp. nov., holotype ♀ (A, B) from St. 20, and paratype ♂ (C-F) from Kushimoto, Kii Peninsula. A, Frontorbital region; B, left third maxilliped; C, abdomen in natural position; D, distal two segments of abdomen; E, first pelopod of left side in abdominal view; F, distal part of the same. Scales in mm.

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posterior part of mesogastric region; its posterior furrow delimiting this region from posterior branchial region transverse for its most part, directed forward at its lateral part, and then directed laterally toward posterior end of second anterolateral tooth; posterior branchial region divided into two by an oblique linear furrow.

Frontal margin concave for its median 1/3, with a median small notch in dorsal view; in frontal view each part of frontal margin produced medially as a convex lobe and directed perpendicularly downward; lateral end of frontal margin produced as triangular lobe which is separated shallowly from median lobe by a wide depression and deeply from inner angle of supraorbital margin. Orbit 1/2 as wide as frontal margin; supraorbital margin transverse for its most part, with traces of two interruptions, granulated throughout its length, narrowly raised for its outer half; external orbital angle not produced.

Anterolateral margin weakly convex, with a short ridge of several granules and following two more or less tuberculated teeth, the first of which is more strongly directed forward; posterolateral margin straight, convergent, with a small conical tooth at its anterior end just behind a furrow following second anterolateral tooth.

Antennule folded horizontally. Basal segment of antenna just touched with ventral prolongation of front. Third maxilliped wide, smooth, bare; outer surface of ischium with a longitudinal linear groove, and inner margin cut into more than ten blunt teeth fringed with sparse short setae.

Chelipeds subequal, covered with conical granules of variable size so as to be scaly in appearance; merus short, protruded beyond carapace only for its distal part, being armed with some sharp granules on its upper margin; carpus rough with solitary and aggregated granules and a median longitudinal and a distal submarginal grooves; inner angle of carpus armed with a main upper and a subsidiary lower tubercles; palm with a longitudinal groove on its outer upper surface; upper margin rounded, but its inner part more or less crested, with several granules directed inward; fingers as long as palm, sharply dentate on cutting edges, strongly pointed at tips; two and one longitudinal deep grooves on outer surfaces of movable and immovable fingers, respectively.

Ambulatory legs slender, sparsely covered with short plumose hairs; anterior margin of merus with a series of conical granules of good size.

Notes on allotype. The allotype male is much smaller than the holotype female, but the general formation of the carapace, chelipeds and ambulatoy legs agrees well with that of the holotype. The dorsal surface of the carapace is less convex, with smaller and sparser granules; the epibranchial region is provided with two prominences in left side, but one in right side due to coalescence with granules; the orbit is fairly oblique, with two distinct depressions on the supraorbital margin; the eyestalk is comparatively short and thick, and the cornea is larger. These discrepancies are probably referred to the difference in developmental stages seen in its smaller size. The chelipeds are unequal, the right being the larger; the outer surface of the palm is rather inflated and covered with smaller granules. This difference is without doubt due to the different sex. The male abdomen is composed of five pieces, third to fifth segments being fused; the third segment is wide and occupies the whole space between the last ambulatory legs of both sides; distal segments only gradually tapering, with the

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convex subacute tip of the distal segment. The first male pleopod is stout and curved obliquely outward at distal third, being subtruncated at its tip.

Remarks. The genus *Miersiella* is monotypically represented by *M. haswelli* (MIERS) from off New South Wales, Australia, Christmas Island in the Indian Ocean and Sagami Bay, Japan. This species has been neglected by the Japanese carcinologists, but BALSS (1922) had recorded from Sagami Bay, 70–180 m deep, under the name of *Platypilumnus haswelli*. The new species is very close to the type species in its general formation of the carapace, chelipeds and ambulatory legs. On comparison with the figures of the syntype male given by GUINOT (1967), in the new species the two anterolateral teeth are more prominent and rather tuberculated, a subsidiary tooth behind the last anterolateral tooth is much smaller, the frontal margin is concave for its median 1/3 in dorsal view, and the first male pleopod is slenderer and truncated at the tip, without conical tubercles on the shaft.

Genus ***Nanocassiope*** GUINOT, 1967

Nanocassiope alcocki (RATHBUN, 1902)

St. 14, between Koniya and Shiraki-zaki, Oshima Passage, 45 m deep, sand and shell; 2 ovig. ♀♀ (cb 4.6 and 5.7 mm); 5–VIII–1988; M. TAKEDA.

SAKAI (1983) used the scientific name, *Nanocassiope granulipes* (SAKAI), for the small xanthid crab from Japan, without regard to the suggestion of GUINOT (1967) and SERÈNE (1984) who considered that *N. granulipes* from Japan repeatedly recorded by the original author from Japanese waters and also from South Africa recorded by SERÈNE (1964) is in all probability synonymized with *N. alcocki* (RATHBUN) known from several localities in the western Indian Ocean. TAKEDA (1976) reported this species from the Palau Islands as the first record from the Pacific. The re-examination of many specimens from Japan and the comparison with the literature of *N. alcocki* revealed that there is no reason to retain *N. granulipes* anymore. SERÈNE (1984) referred his identification in 1964 as *N. granulipes* from South Africa to that of *N. alcocki*.

This species is not uncommon in Japanese waters from Sagami Bay southward to Kyushu, and otherwise known from the Palau Islands in the West Pacific and from the Maldives, Madagascar and the adjacent several islands in the western Indian Ocean. The bathymetric range is from 36 to 140 m deep, but there is an exceptional record from a depth of 460 m off the southern coast of Madagascar.

Genus ***Pilodius*** DANA, 1851

Pilodius areolatus (H. MILNE EDWARDS, 1834)

Saneku, Kakeroma-jima I., 3–7 m deep; 1 ♂ (cb 16.0 mm), 1 ♀ (cb 13.2 mm); 4–VI–1989; I. SOYAMA.

Known from the whole Indo-West Pacific. In Japanese waters this species has hitherto

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been recorded from Yoron-jima Island and the Yaeyama Group in the southern Ryukyu Islands.

Pilodius pilumnoides (WHITE, 1847)

Oshima Passage, 25–40 m deep; 1 ♂ (cb including lateral teeth, 13.0 mm); 29–VI–1970; Kagoshima Univ.

The species ranges from the Ryukyu Islands through the Malay Archipelago to the Maldive Islands. In the Ryukyu Islands it has hitherto been recorded from Ishigaki-jima Island, and therefore its geographical range was extended north to Amami-Oshima Island.

Genus ***Platypodia*** BELL, 1835

Platypodia granulosa (RÜPPELL, 1830)

Miura, Kakeroma-jima I.; 3 juv. (cb 7.8–12.3 mm); 16–VII–1988; M. TAKEDA.

Known from the whole Indo-West Pacific. In Japanese waters this species has hitherto been recorded from the Ryukyu Islands south of Yoron Island. The northern limit was therefore extended further north.

Genus ***Psaumis*** KOSSMANN, 1877

Psaumis cavipes (DANA, 1852)

Saneku, Kakeroma-jima I., 3–5 m deep; 1 ♂ (cb 9.0 mm); 24–V–1989; I. SOYAMA. Sankeu, 1 ♀ (cb 13.5 mm); 30–V–1989; I. SOYAMA.

Common in the whole Indo-West Pacific, having been previously known as *Actaea* or *Actaeodes*. The combination with the genus *Psaumis* is due to SERÈNE (1984).

Family Pilumnidae

Genus ***Actumnus*** DANA, 1851

Actumnus dorsipes (STIMPSON, 1858)

Oshima Passage, 25–40 m deep; 1 ♂ (cb 8.4 mm); 29–VI–1970; Kagoshima Univ.

Originally reported from Hong Kong, and later from Sagami Bay and west of Kyushu. Recently SAKAI (1983) recorded this species from Ishigaki-jima Island, the Ryukyu Islands. Its bathymetric range is from 20–60 m.

Actumnus setifer (DE HAAN, 1835)

Oshima Passage, 25–40 m deep; 2 ♂♂ (cb 7.3 and 10.7 mm), 1 ♀ (cb 9.2 mm); 29–VI–

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1970; Kagoshima Univ.

St. 24, off Doren, Oshima Passage, 40 m deep, sand and shell; 1 juv. (cb 5.9 mm); 8–VIII–1988; M. TAKEDA. St. 27, off Doren, Oshima Passage, 40 m deep, sand and shell; 1 juv. (cb 5.0 mm); 8–VIII–1988; M. TAKEDA.

Known from the Indo-West Pacific from Japan southward to Tahiti and Australia, and then westward to the Red Sea and South Africa, from littoral to 50 m deep.

Genus *Heteropilumnus* DE MAN, 1895

Heteropilumnus longipes (STIMPSON, 1858)

Miura, Kakeroma-jima I.; 1 ♀ (cb 10.4 mm); 16–VII–1988; M. TAKEDA.

The specimen at hand agrees quite well with an ovigerous female from Mage-jima Island in the south of Kyushu reported by TAKEDA (1977a). The carapace, chelipeds and ambulatory legs are densely and uniformly covered with a short tomentum and long silky hairs. The dorsal surface of the carapace is flattened and ill-defined; the anterolateral border is cut into four lobes by three small notches.

Restricted to Japanese waters from the vicinity of the Kii Peninsula southwards to the Ryukyu Islands, from coral reef to 154 m deep.

Genus *Parapilumnus* KOSSMANN, 1877

Parapilumnus sp.

Surihama, Kakeroma-jima I., 5 m deep; 1 ♀ (cb including lateral teeth, 5.4 mm, cl 3.9 mm); 10–VI–1989; I. SOYAMA.

This species is generally close to *Parapilumnus hondai* TAKEDA et MIYAKE known only from Tokuno-shima Island in the south of Amami-Oshima Island. In the specimen at hand, however, the gastric and branchial regions are thickly covered with a velvety short hairs, the anterolateral teeth are rather tuberculated and spine-tipped, both chelipeds are densely covered with longish plumose hairs and short velvety hairs, the cutting edges of both fingers bear some distinct teeth, the ambulatory merus of each pair is armed with several spinules instead of some on its anterior margin, and the ambulatory carpus is also armed with many tiny granules, without larger subacute granules of good size. This specimen may represent a species distinct from *P. hondai*.

Genus *Pilumnus* LEACH, 1815

Pilumnus longicornis HILGENDORF, 1878

Oshima Passage, 25–40 m deep; 1 young ♀ (cb 7.9 mm); 29–VI–1970; Kagoshima Univ.

Known from the Indo-West Pacific ranging from Japan southward to Australia, and then westward to the east coarst of Africa, 10–85 m deep.

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Pilumnus minutus (DE HAAN, 1835)

Oshima Passage, 25–40 m deep; 4 ♂♂ (cb 8.5–10.0 mm), 4 ♀♀ (cb 7.2–10.0 mm); 29–VI–1970; Kagoshima Univ.

St. 14, between Koniya and Shiraki-zaki, Oshima Passage, 45 m deep, sand and shell; 1 ♀ (cb 5.9 mm); 5–VIII–1988; M. TAKEDA. St. 17, south of Tawara-zaki, Oshima Passage, 45 m deep, fine sand; 3 ovig. ♀♀ (cb 7.2, 7.3 and 7.8 mm); 6–VIII–1988; M. TAKEDA. St. 18, near Tawara, Oshima Passage, 30 m deep, coral and sand; 1 ♂ (cb 10.8 mm); 6–VIII–1988; M. TAKEDA. St. 19, near Seso, Oshima Passage, 25 m deep, coral and rock; 1 ♂ (cb 6.2 mm), 1 ovig. ♀ (cb 7.7 mm); 6–VIII–1988; M. TAKEDA.

Known from the Indo-West Pacific ranging from Japan southward to Australia, and then westward to the Red Sea and South Africa, from littoral to 50 m deep.

Pilumnus sp.

Miura, Kakeroma-jima I., 1 ♂ (cb including lateral teeth, 17.8 mm), 4 ovig. ♀♀ (cb 12.8–17.7 mm); 15–VII–1988; M. TAKEDA.

Typical *Pilumnus*. The carapace is ill-defined on the dorsal surface and armed with four sharp teeth including the external orbital tooth. The carapace, chelipeds and ambulatory legs are covered with longish simple setae and plumose hairs. This species is generally close to *P. minutus* (DE HAAN), but much larger, without plumose hairs on the shaft of the male first pleopod, and also to *P. purpureus* A. MILNE EDWARDS reported by TAKEDA & MIYAKE (1968), but the male first pleopod has no long and stout setae at its inner subdistal part with the longer beak.

Genus *Planopilumnus* BALSS, 1933

Planopilumnus vermiculatus (A. MILNE EDWARDS, 1873)

Saneku, Kakeroma-jima I., 3–5 m deep; 1 ♀ (cb 8.5 mm); 4–VI–1989; I. Soyama.

This characteristic species with vermiculate sculpture on the dorsal surface has hitherto been known from Ishigaki-jima and Taketomi-jima Islands in the southern Ryukyu Islands, the Marshall Islands and New Caledonia. The northern limit was extended north to Amami-Oshima Island.

Family Goneplacidae

Genus *Ceratoplax* STIMPSON, 1858

Ceratoplax truncatifrons RATHBUN, 1914

(Fig. 14)

St. 16, southeast of Tawara-zaki, Oshima Passage, 45 m deep, fine sand; 1 ovig. ♀ (cb

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4.3 mm; cl 2.5 mm); 6–VIII–1988; M. TAKEDA. St. 17, near Tawara, Oshima Passage, 45 m deep, fine sand; 1 ♂ (cb 5.0 mm, cl 2.9 mm); 6–VIII–1988; M. TAKEDA.

This small species is, as rightly mentioned by TESCH (1918), recognized by its remarkably smooth and shining carapace which was orange red in life.

Carapace strongly convex longitudinally and flattened transversely so as to be sub-cylindrical; regions ill-defined, with faint traces of gastro-cardiac, gastro-hepatic and branchio-hepatic sulci. Front deflexed, truncated. Eyestalk pyriform, thick in the middle, with a small pigmented cornea at distal ventral side. Anterolateral border entire, 1.5 times as long

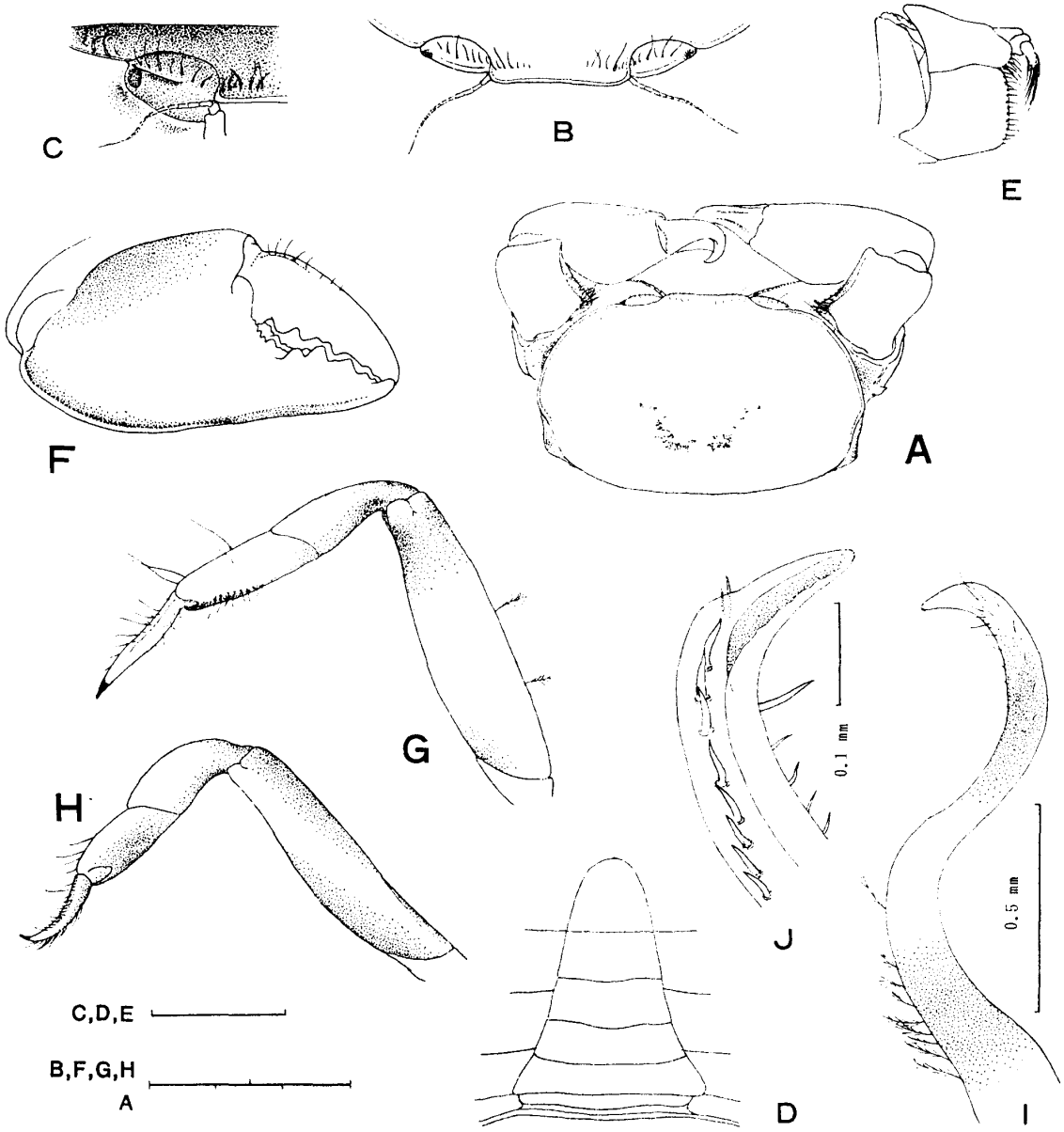

Fig. 14. *Ceratoplax truncatifrons* RATHBUN, 1914, ♂ from St. 17. A, Carapace, with chelipeds; B, frontorbital region; C, orbital region of right side; D, abdomen; E, right third maxilliped; F, right chela; G, third ambulatory leg; H, fourth ambulatory leg; I, first pleopod of left side in sternal view; J, distal part of the same in abdominal view. Scales in mm.

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as the posterolateral, divergent; posterolateral border only weakly convergent, provided with a fur on its narrow lateral wall. Chelipeds unequal; merus short, unarmed; carpus broader than long, sharply angulated at its inner angle; palm compressed and carinate for its upper margin; fingers also compressed, crenulate at inner margins. Ambulatory legs slender and hairy; dactylus of last leg distinctly curved backward and upward.

This species has hitherto been known by one male from Badian Island, off western Samar, the Philippines, 32 fms deep (RATHBUN, 1914), and two males and five females from Sula Island, east of Celebes, 22 m deep (TESCH, 1918). As rightly compared and distinguished by them, this species is most close to *C. fulgida* RATHBUN from near Marinduque Island, the Philippines, but most surprisingly different from it by the anterolateral margins being longer and the posterolateral margin weakly convergent, and by the truncated front having no median notch.

Genus *Notonyx* A. MILNE EDWARDS, 1873

Notonyx vitreus ALCOCK, 1900

(Fig. 15)

St. 20, west side of Nominoura, Oshima Passage, 45 m deep, coarse sand and shell; 1 ♂ (cb 4.8 mm, cl 3.9 mm); 6–VIII–1988; M. TAKEDA.

The specimen at hand was referred to this rare species with a slight hesitation, not to another representative of the genus, *N. nitidus* A. MILNE EDWARDS. This species is only known from the Andamans (ALCOCK, 1900; SERÈNE & SOH, 1976), and Madura Bay, west coast of Flores, 69–91 m deep and south of Salawatti, near northwest New Guinea, 32 m deep (TESCH, 1918).

The specimen at hand distinctly differs from *N. nitidus* in the narrower carapace, with less convex anterolateral border of the carapace, and the narrower male abdomen. The male first pleopod is as figured, differing from that of *N. nitidus* figured by STEPHENSEN (1945) and SERÈNE & UMALI (1972). The discrepancy between this specimen and the original description of *N. nitidus* which is only diagnostic with some lines is the armature of the cheliped; contrary to the original description cited as "No denticle on the arm: inner angle of wrist blunt", in the present specimen the upper margin of the merus and the inner angle of the carpus are armed each with a small, but distinctly tuberculate tooth. The following is a brief description of the specimen at hand.

A small species. Carapace, chelipeds and ambulatory legs glabrous, only with sparse longish hairs on distal three segments of ambulatory legs. Carapace narrowly quadrate, vaulted longitudinally; gastric and cardiac regions very faintly traced. Frontal margin transverse, entire, more than 1/3 and less than 1/2 as broad as carapace. Supraorbital margin longitudinal for its inner part, transverse and weakly sinuate for its outer part. Eyestalk inflated and constricted just near well developed cornea. Lateral margin of carapace shallowly isolated by a small interruption from external orbital angle which is indistinctly produced; its anterior 1/3 or less narrowly carinated; lateral margins of both sides subparallel or weakly

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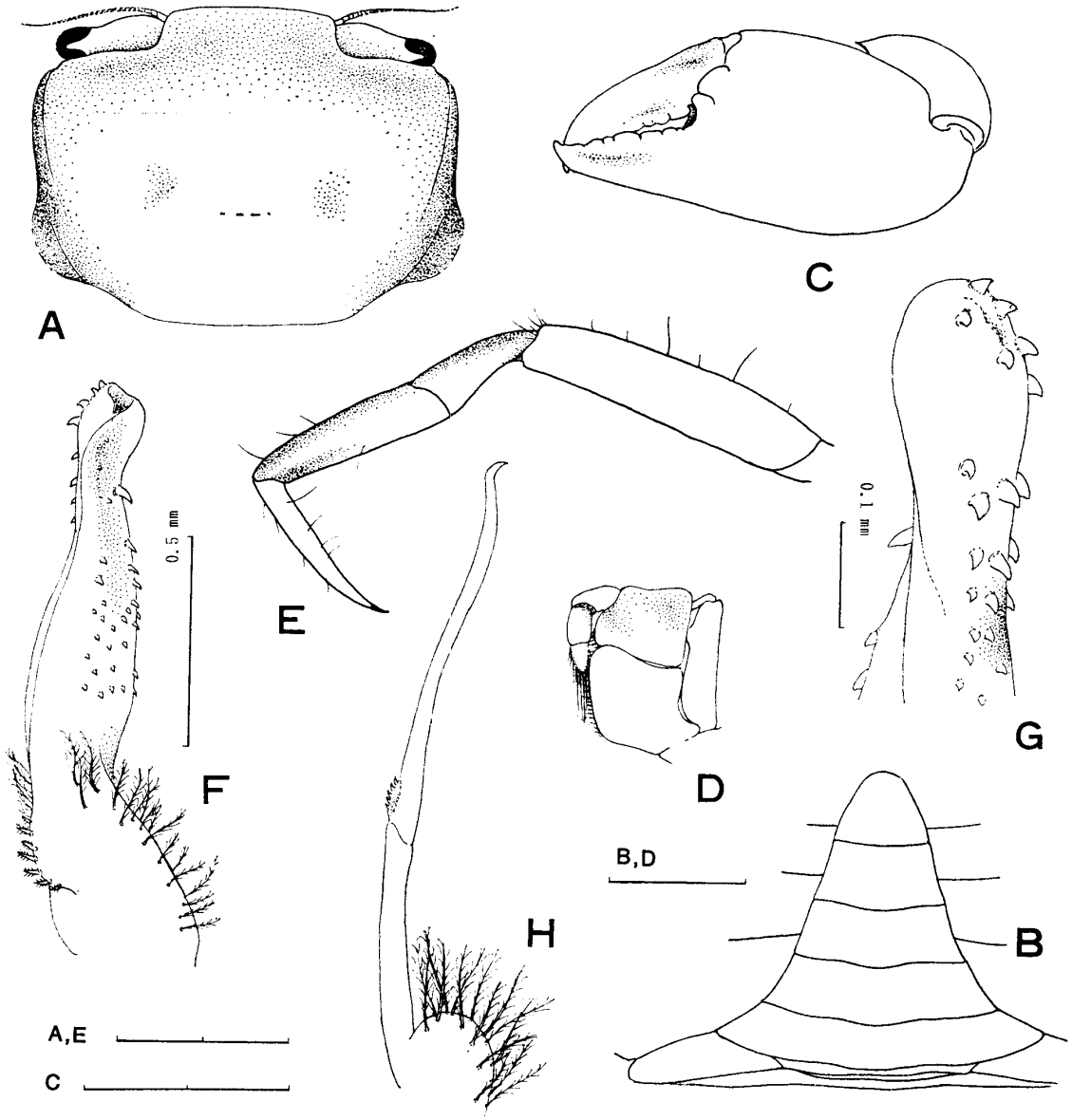

Fig. 15. *Notonyx vitreus* Alcock, 1900, ♂ from St. 20. A, Carapace; B, abdomen; C, left chela; D, left third maxilliped; E, ambulatory leg; F, first pleopod of left side in abdominal view; G, distal part of the same in sternal view; H, second pleopod of left side in abdominal view. Scales in mm.

convergent posteriorly, but each lateral wall of carapace is divergent. Chelipeds unequal; upper margin of merus crested for its proximal 2/3, and armed with a small, but distinct tooth at distal end of this crest; carpus with a tooth at its inner angle; palm more or less compressed, with blunt upper and weakly ridged lower margins. Ambulatory legs very slender.

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Genus *Psopheticus* WOOD-MASON, 1890

Psopheticus megalops sp. nov.

(Figs. 16, 17)

Oshima Passage, 25–40 m deep; 1 ♂ (cb including epibranchial teeth, 5.6 mm, cl 4.8 mm, frontorbital breadth, 2.6 mm), holotype; 29–VI–1970; Kogoshima Univ.

East of Tanega-shima I., ca. 50 m deep; 1 ♀ (cb 5.1 mm, cl 4.4 mm, frontorbital breadth, 2.2 mm), allotype; 18–VI–1975; M. TAKEDA & M. IMAJIMA.

Description of holotype. Carapace quadrate rather than hexagonal in its appearance, almost smooth, without hairs; dorsal surface uneven with indication of regions, but flattened as a whole; frontal region prominent, weakly convex dorsally, without median separation, being isolated from orbital region by a crescent linear furrow along orbit and from protogastric region by a transverse, shallow and wide furrow; protogastric region large, weakly convex in both directions; anterior extension of mesogastric region between protogastric regions narrow, and posterior main part small, rather depressed, not distinctly delimited from protogastric region; cardiac region transverse, bluntly ridged; branchial region provided with an obtuse low tubercle in a level of mesogastric region, weakly angulated at posterolateral part in a

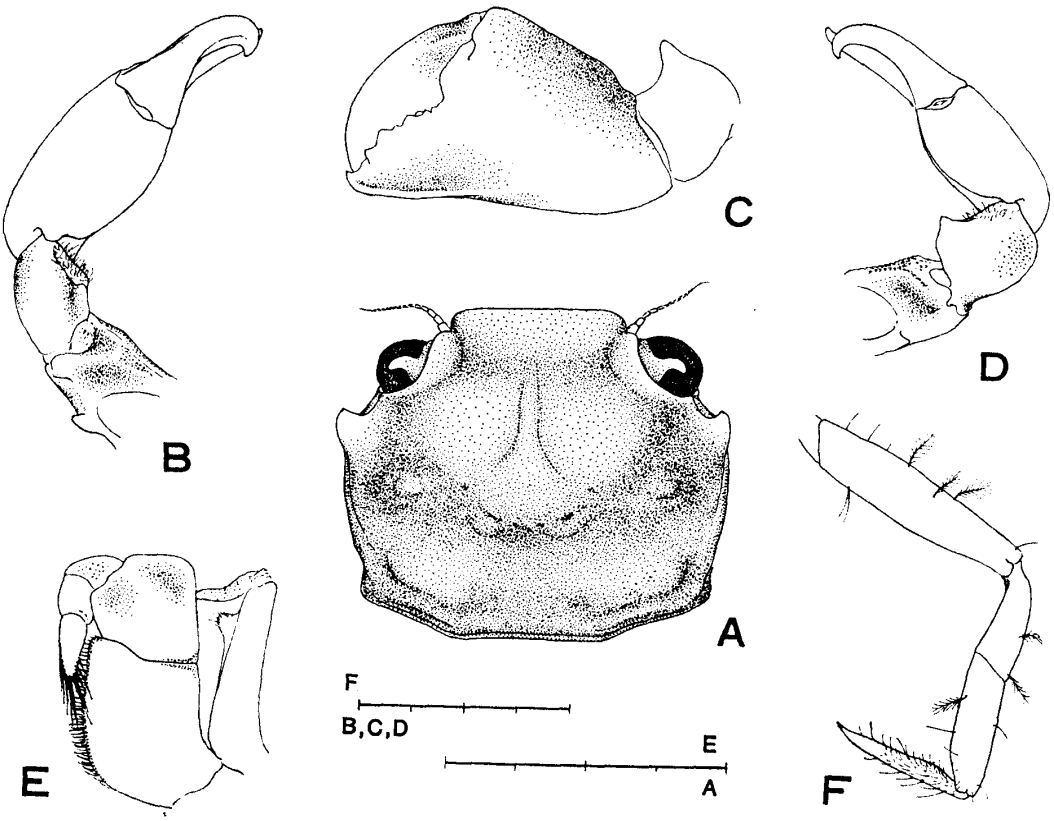

Fig. 16. *Psopheticus megalops* sp. nov., holotype ♂ from the Oshima Passage. A, Carapace, B and C, left cheliped in dorsal and outer views, respectively; D, right cheliped in dorsal view; E, left third maxilliped; F, right ambulatory leg. Scales in mm.

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level of cardiac region; posterior margin of branchial region narrowly ridged along carapacial posterior margin. Front well developed, protruded forward beyond inner angle of supraorbital margin, being only slightly less than breadth of carapace; in dorsal view its free margin almost truncated, but in oblique frontal view its submedian part is shallowly concave at each side of a median indistinct prominence. Supraorbital margin very oblique, narrowly raised laterally, with a trace of indentation at median part; external orbital angle not formed; eyestalk very short, and cornea very large, spherical, not accomodated in orbit for its most part. Lateral border of carapace only with an epibranchial tooth which is compressed and placed at anterior 2/3 and oblique as continuation of anterolateral part of lateral border; posterior part obliquely truncated at outside of angular part of branchial region.

Antennule transversely folded in a fossa. Basal segment fills the orbital hiatus, its distal inner angle just reaching ventral prolongation of front; flagellum not excluded from orbit, its first segment just reaching inner angle of supraorbital margin. Third maxillipeds broad, completely close buccal flame; merus quadrate and not produced anterolaterally.

Male abdomen with seven distinct segments, comparatively wide, not rapidly tapering, with obtuse apex of last segment; third segment slightly less than sternal breadth between last ambulatoy legs of both sides. Male genital opening sternal. First male pleopod as figured, with a branch of subdistal part recurved; second male pleopod subfiliform, as long as or slightly longer than the first.

Chelipeds comparatively heavy, similar but unequal in both sides; merus very short, its upper margin being medially armed with a blunt tubercle and rounded distally; carpus prominent, more or less compressed, with a high compressed tubercle at its inner angle; palm

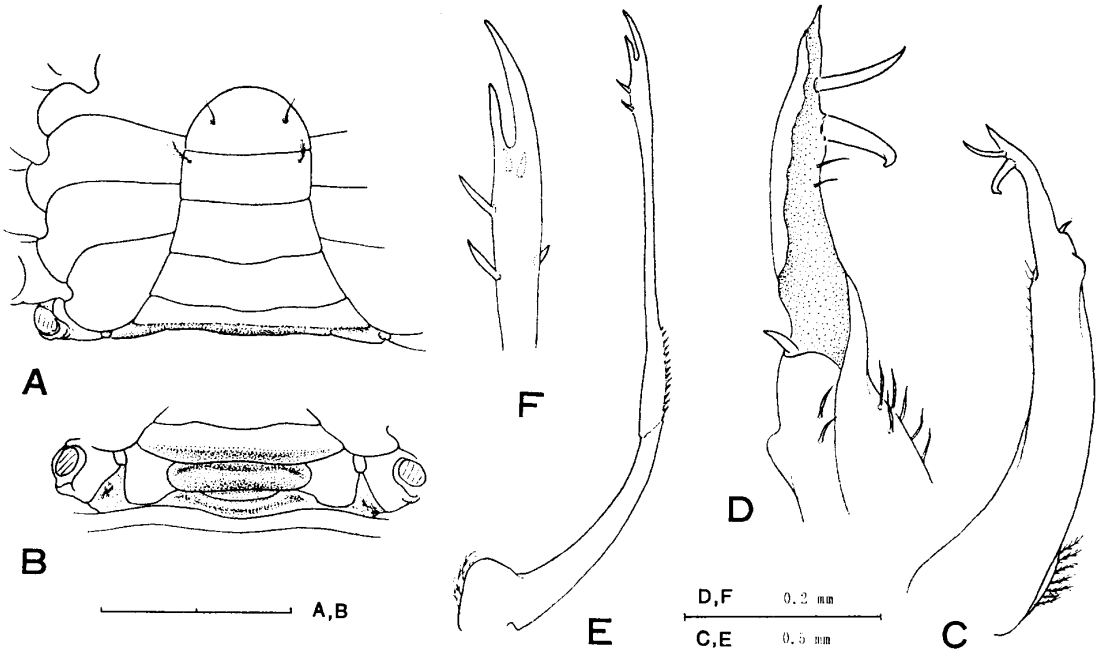

Fig. 17. *Psopheticus megalops* sp. nov., holotype ♂ from the Oshima Passage. A and B, Abdomen; C, first pleopod of left side in sternal view; D, distal part of the same in abdominal view; E, second pleopod of left side in sternal view; F, distal part of the same. Scale for A and B in mm.

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smooth, not long, higher distally, weakly compressed, with flattened outer surface and rounded upper margin; fingers also high, weakly curved inward, irregularly toothed on cutting edges, dark-colored for their distal halves.

Four detached ambulatory legs slender, very sparsely fringed with hairs, microscopically granulated on margins.

Notes on allotype. The allotype female is in good condition. It agrees well with the holotype male except for the inner angle of the chelipedal carpus which is armed with a tubercle not compressed. The last ambulatory leg is shorter than the preceding pairs as usual, but the distal two segments are distinctly depressed and wider. The female abdomen is prominently wide, completely covering the sternum.

Remarks. The inclusion to the genus *Psopheticus* represented by three Indo-West Pacific species is rather arbitary and tentative. The general shape of the carapace having only an epibranchial tooth at each side may indicate the systematic position in this genus, but in the congeners, *P. stridulans* WOOD-MASON, *P. insignis* ALCOCK and *P. hughi* RATHBUN, the front is narrower, with the transverse and wide orbits at each side. The new species may be close to *P. hughi* among them in having the quadrate carapace. In this species from Japan and the Philippines the carapace is smooth, without indication of the regions, the chelipedal carpus is armed with a spine at its outer surface, and the ambulatory meri armed each with a subdistal spine.

Genus *Typhlocarcinus* STIMPSON, 1858

Typhlocarcinus villosus STIMPSON, 1858

St. 1, Miura, Oshima Passage, 45 m deep, fine sand; 1 ♂ (cb 4.3 mm); 4–VIII–1988; M. TAKEDA. St. 16, southeast of Tawara-zaki, Oshima Passage, 45 m deep, fine sand; 1 ♂ (cb 4.5 mm); 6–VIII–1988; M. TAKEDA.

These specimens are rather small, but have the developed *Pilumnus*-type first pleopod. The general shape of the carapace, chelipeds and ambulatory legs seems to agree well with the figure given by SAKAI (1976), but the orbit may be proportionally larger.

This species ranges from Japan through Hong Kong, the Gulf of Thailand, the Malay Archipelago to the Bay of Bengal, 30–60 m deep.

Genus *Xenophthalmodes* RICHTERS, 1880

Xenophthalmodes morsei RATHBUN, 1932

St. 1, Miura, Oshima Passage, 45 m deep, fine sand; 1 ♂ (cb 3.8 mm); 4–VIII–1988; M. TAKEDA.

Endemic to Japan from Sagami Bay to Kuyshu, 30–50 m deep. The southern limit of distribution was extended to Amami-Oshima Island.

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Genus *Zehntneria* TAKEDA, 1972

Zehntneria miyakei TAKEDA, 1972

St. 18, near Tawara, Oshima Passage, 30 m deep, coarse sand; 1 juv. (cb 3.9 mm); 6–VIII–1988; M. TAKEDA. St. 20, west side of Nominoura, 45 m deep, coarse sand and shell; 1 ♂ (4.7 mm); 6–VIII–1988; M. TAKEDA.

Although the systematic status of the genus *Zehntneria* is not always clear, three species from the West Pacific are referred to this genus by TAKEDA (1972). The type species is *Ceratoplax villosa* ZEHNTNER, 1890 originally reported from Amboina and subsequently recorded from Ishigaki-jima, Okinawa-jima and Kume-jima Islands in the Ryukyu Islands, and two additional species are *Lithocheira amakusae* TAKEDA et MIYAKE, 1969 from west of Kyushu and *Z. miyakei* TAKEDA, 1972 from the Palau Islands. The type species is densely and uniformly covered with a fur, while in *Z. amakusae* a fur is sharply restricted to the frontal, supraorbital and anterolateral regions and *Z. miyakei* is close to *Z. amakusae*, but a fur is much sparser and not distinctly delimited from the remainder of the dorsal surface. Both of the specimens at hand are quite well agreeable with the original description of *Z. miyakei* which is distinctly different from *Z. amakusae* in having much slenderer ambulatory legs.

This species dedicated to Prof. Emeritus S. MIYAKE of Kyushu University has hitherto been known only by two males and one female from the Palau Islands.

Family Trapeziidae

Genus *Trapezia* LATREILLE, 1825

Trapezia cymodoce (HERBST, 1801)

Oshima Passage, 25–40 m deep; 1 ovig. ♀ (cb 14.8 mm); 29–VI–1970; Kagoshima Univ.
Eniya Islet, Oshima Passage, 5 m deep; 1 ♂ (cb 11.5 mm); 30–IX–1988; I. SOYAMA.
Shiba, Kakereoma-jima I., 4 m deep; 1 ovig. ♀ (cb 13.7 mm); 9–X–1988; I. SOYAMA.

Common in the whole Indo-West Pacific.

Trapezia guttata RÜPPELL, 1830

St. 18, near Tawara, Oshima Passage, 30 m deep, coarse sand; 1 ♂ (cb 7.5 mm), 1 ovig. ♀ (cb 9.5 mm) found among branches of living coral; 6–VIII–1988; M. TAKEDA.

These specimens agree very well with the figures given by FOREST & GUINOT (1961) and SAKAI (1976), being characteristic in having the front fringed with brick red and the ambulatory legs provided with many spots of the same color.

Known from the Indo-West Pacific from the Ryukyu Islands to Tahiti, and to the Red Sea. In Japanese waters this species has been known from Yoron-jima, Ishigaki-jima and Taketomi-jima Islands, so that the northern limit was extended to Amami-Oshima Island.

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Family Pinnotheridae

Genus ***Pinnotheres*** BOSC, 1801–1802

Pinnotheves villosulus GUÈRIN-MÉNEVILLE, 1831

(Pl. 1D)

Miura, Kakeroma-jima I., from mantle cavity of the silver lip oyster, *Pinctada maxima*; 1 ♀ (cb 13.3 mm); 30–IX–1988; T. KOYANAGI.

This species has been well figured by H. MILNE EDWARDS (1853), MIERS (1886), RATHBUN (1924), BÜRGER (1895) and TAKEDA & SHIMAZAKI (1974). It is characteristic in having the carapace, chelipeds and ambulatory legs clothed with a thick wooly tomentum. The carapace is rather well calcified and almost flattened for its posterior 2/3 of the dorsal surface, with the gastric and cardiac regions faintly demarcated. The lateral margins of the carapace are rigid; the anterolateral margin is widely divergent toward the more or less angulated median part; the lateral angle of the carapace is also weakly produced; the posterolateral margin is only weakly convergent and shallowly concave in the middle.

This species is an inhabitant of silver lip oyster, *Pinctada maxima,* and also recorded by BÜRGER (*op. cit.*) from *Pinna chemnitzii* and *Meleagrina margaritifera.*

Previously known from the West Pacific from the Philippines to the Torres Straits, and also from Bouccant Bay and Cape Jaubert in northwestern Australia.

Family Cryptochiridae

Genus ***Hapalocarcinus*** STIMPSON, 1859

Hapalocarcinus marsupialis STIMPSON, 1859

Surihama, Kakeroma-jima I., 3–6 m deep; 1 ♀ (cb 2.5 mm); 10–VI–1989; I. SOYAMA.

This species is the unique gall-forming crab living parasitically with branching corals of the Pocilloporidae. Its life-cycle is referred to HIRO (1937) and UTINOMI (1944).

Known from the whole Indo-West Pacific, and also the Pacific coast of Central and South America. In Japanese waters the northern limit was extended from Yoron-jima Island further north to Amami-Oshima Island.

Zoogeographical Notes

This paper deals with shallow-water crabs referable to 81 species of 14 families living in the Oshima Passage between Amami-Oshima and Kakeroma-jima Islands in the northern Ryukyu Islands. All the species are listed in Table 1, with four sources of collections. It is remarkable that the species common with the different collections are surprisingly few. For instance, the number of the species common with the National Science Museum collection (42 spp.) and the Kagoshima University collection (19 spp.), both collected by dredging, are olnly 5, viz., 3 species of the Leucosiidae, 1 species of the Parthenopidae, 1 species of

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Table 1. Crabs from shallow waters in the Oshima Passage, Amami-Oshima. The species with an asterisk are new to Japanese waters.

Species \ Gear	Dredging		Refuse of pearl shell	SCUBA diving
	NSMT	Kagoshima Univ.		
DROMIIDAE				
**Petalomera* sp.		+		
LEUCOSIIDAE				
**Arcania* sp.	+	+		
Cryptocnemus pentagonus STIMPSON, 1858	+			
Heteronucia venusta NOBILI, 1906			+	+
**Leucosia alcocki* OVAERE, 1987	+			
L. anatum (HERBST, 1783)	+			
L. perlata DE HAAN, 1841	+			
**L.* sp.	+			
Myra fugax (FABRICIUS, 1798)	+			
Nursia japonica SAKAI, 1935	+	+		
Oreophorus rugosus STIMPSON, 1858	+			
Philyra platycheira DE HAAN, 1841	+	+		
Pseudophilyra tridentata MIERS, 1879		+		
CALAPPIDAE				
Calappa lophos (HERBST, 1782)	+			
C. philargius (LINNAEUS, 1758)	+			
HYMENOSOMATIDAE				
**Elamena gracilis* BORRADAILE, 1903				+
MAJIDAE				
**Achaeus serenei* GRIFFIN et TRANTER, 1986	+			
**A. villosus* RATHBUN, 1916	+			
**Chalaroachaeus curvipes* DE MAN, 1902				+
**Cyclax spinicinctus* Heller, 1861				+
Hyastenus borradailei (RATHBUN, 1907)			+	
H. convexus MIERS, 1884	+			
Menaethius monoceros (LATREILLE, 1825)			+	
Oncinopus neptunus ADAMS et WHITE, 1848				+
**Tylocarcinus sinensis* DAI, YANG, FENG et SONG, 1978				+
PARTHENOPIDAE				
**Aulacolambrus sibogae* FLIPSE, 1930	+	+		
Calvactaea tumida WARD, 1933	+			
Parthenope longimanus (LINNAEUS, 1764)		+		
EUMEDONIDAE				
**Ceratocarcinus longimanus* WHITE, 1847		+		
**Harrovia albolineata* ADAMS et WHITE, 1848	+			

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Table 1. (Continued)

Species	Gear: Dredging: NSMT	Gear: Dredging: Kagoshima Univ.	Refuse of pearl shell	SCUBA diving
CORYSTIDAE				
Jonas distinca (DE HAAN, 1835)	+			
PORTUNIDAE				
Charybdis trunctata (FABRICIUS, 1798)	+			
Lissocarcinus laevis MIERS, 1886	+			
Portunus haani (STIMPSON, 1858)	+			
P. tenuipes (DE HAAN, 1835)	+			
Thalamita admete (HERBST, 1803)	+		+	
**T. corrugata* STEPHENSON et REES, 1961			+	
T. demani NOBILI, 1905			+	
T. oculea ALCOCK, 1899	+			
T. parvidens (RATHBUN, 1907)	+			
T. quadrilobata MIERS, 1884				+
**T. sexlobata* MIERS, 1886	+			
T. stimpsoni A. MILNE EDWARDS, 1861			+	
T. wakensis EDMONDSON, 1925			+	
XANTHIDAE				
Actaea perspinosa BORRADAILE, 1902	+	+		
A. pura STIMPSON, 1858		+		+
**Calmania dahli* (BALSS, 1933)				+
Chlorodiella laevissima (DANA, 1852)	+			
Gaillardiellus rueppelli (KRAUSS, 1843)		+		
Lachnopodus subacutus (STIMPSON, 1858)				+
Liomera caelata (ODHNER, 1925)	+			
L. erytra (LANCHESTER, 1900)	+			
L. rubra (A. MILNE EDWARDS, 1865)		+		
Lophozozymus pulchellus A. MILNE EDWARDS, 1867				+
Lybia caestifera (ALCOCK, 1898)	+			
L. tessellata (LATREILLE, 1812)				+
**Metaxanthops acutus* SERÈNE, 1984			+	
**Miersiella cavifrons* sp. nov.	+			
Nanocassiope alcocki (RATHBUN, 1902)	+			
Pilodius areolatus (H. MILNE EDWARDS, 1834)				+
P. pilumnoides (WHITE, 1847)		+		
Platypodia granulosa (RÜPPELL, 1830)			+	
Psaumis cavipes (DANA, 1852)				+
PILUMNIDAE				
Actumnus dorsipes (STIMPSON, 1858)		+		
A. setifer (DE HAAN, 1835)	+	+		
Heteropilumnus longipes (STIMPSON, 1858)			+	
**Parapilumnus* sp.				+

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Table 1. (Continued)

Species	Grar Dredging NSMT	Kagoshima Univ.	Refuse of pearl shell	SCUBA diving
Pilumnus longicornis HILGENDORF, 1878	+	+		
P. minutus (DE HAAN, 1835)		+		
**P.* sp.			+	
Planopilumnus vermiculatus (A. MILNE EDWARDS, 1873)				+
GONEPLACIDAE				
**Ceratoplax truncatifrons* RATHBUN, 1914	+			
**Notonyx vitreus* ALCOCK, 1900	+			
**Psopheticus megalops* sp. nov.		+		
Typhlocarcinus villosus STIMPSON, 1858	+			
Xenophthalmodes morsei RATHBUN, 1932	+			
**Zehntneria miyakei* TAKEDA, 1972	+			
TRAPEZIIDAE				
Trapezia cymodoce (HERBST, 1801)		+		+
T. guttata RÜPPELL, 1830	+			
PINNOTHERIDAE				
**Pinnotheres villosulus* GUÈRIN-MÉNEVILLE, 1831			+[1)]	
CRYPTOCHIRIDAE				
Hapalocarcinus marsupialis STIMPSON, 1859				+
Total number of species	42	19	13	18

1) Inhabitant of mantle carity of silver lip oyster, *Pinctada maxima*.

the Xanthidae and 2 species of the Pilumnidae. And also, only 1 species of the Leucosiidae is common with 18 species collected with SCUBA diving and 13 species found in refuse of the pearl shells. It is rather difficult to explain the cause of this remarkable difference between the collections made by the National Science Museum and Kagoshima University, but at least, it is definitely said that the different gears must be very effective to collect the animals living in the different habitats.

Two species of two families, *Miersiella cavifrons* sp. nov. (Xanthidae) and *Psopheticus megalops* sp. nov. (Goneplacidae) were described as new to science, and 23 species of 10 families (1 species of the Dromiidae, 3 species of the Leucosiidae, 1 species of the Hymenosomatidae, 5 species of the Majidae, 3 species of the Parthenopidae, 2 species of the Portunidae, 2 species of the Xanthidae, 2 species of the Pilumnidae, 3 species of the Goneplacidae and 1 species of the Pinnotheridae) as new to the carcinological fauna of Japan. The new species of the Xanthidae is, as noted in the description, close to a sole representative of the genus, *Miersiella haswelli* (MIERS) from Sagami Bay in Japan, Christmas Island in the eastern Indian Ocean and New South Wales in Australia. Another new species has four relatives, *Psopheticus hughi* RATHBUN from Japan and the Philippines, *P. stridulans* Wood-Mason ranging from

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Japan to India, *P. insignis* ALCOCK from Taiwan and the Gulf of Martaban, and *P. vocans* GUINOT from New Caledonia. All the crabs new to Japan are the southern distributed species known from the Philippines, the Micronesia, the Malay Archipelago and the Indian Ocean. Some of them are very rare and known only by the original description.

Altogether 12 species of 7 families (1 species of the Leucosiidae, 1 species of the Majidae, 2 species of the Portunidae, 5 species of the Xanthidae, 1 species of the Pilumnidae, 1 species of the Trapeziidae and 1 species of the Cryptochiridae) which have been previously known from the southern Ryukyu Islands, were at present recorded at the Oshima Passage, and thus the northern limit of the distribution was extended northward to Amami-Oshima Island in the northern Ryukyu Islands.

On the other hand, it is remarkable that *Cryptocnemus pentagonus* and *Nursia japonica* of the Leucosiidae and *Xenophthalmodes morsei* of the Goneplacidae were recorded at present. These species are considered to be endmic to Japan from central Honshu to Kyushu, so that the extension of the southern limit of the distribution to Amami-Oshima Island is worth noting.

要　　約

昭和年63年（1988）7月，国立科学博物館の「奄美大島周辺地域の自然史科学的総合研究」の一環として，奄美大島と加計呂麻島間の大島海峡においてドレッジを用いた底生生物調査が行われた．調査地点は水深 15 m から 70 m にわたる合計27地点で（Fig. 1），得られたカニ類は10科32属42種に分類された．また，真珠養殖のために浅海に懸垂したマベの貝殻から掻き落とした付着生物の間から見い出されたカニ類は5科8属12種に分類され，マベの外套腔からカクレガニ科の1種が得られた．その他，プロカメラマンの楚山勇氏がスクーバ潜水中に採集したカニ類（8科18属18種），昭和45年（1970年）に鹿児島大学水産学部の学生がドレッジを用いて採集したカニ類（7科16属19種）も含めた．すべてのカニ類は合計14科57属81種であるが，Table 1 に示したように，それぞれのコレクションの間で重複している種が少ないことが特筆される．国立科学博物館と鹿児島大学の採集方法はともにドレッジであるが，前者の42種と後者の19種とに共通しているのはコブシガニ科3種，ヒシガニ科1種，オウギガニ科1種，ケブカガニ科2種の合計7種にすぎない．これは"ドレッジ"とはいっても器具の形と大きさの違いによるためなのか，あるいは採集地点の海底の状態によるためなのか，カニ類の種構成だけからでは説明が難しい．一方，スクーバ潜水によって得られた18種とマベの付着生物中から得られた12種に共通するのはコブシガニ科の1種にすぎず，また，ドレッジによって得られた種と共通するのもオウギガニ科の1種とサンゴガニ科の1種にすぎない．これは，それぞれの生息環境が異なるほか，採集方法の違いが主因と考えられる．すなわち，スクーバ潜水によって得られた種は主として岩礁性で，目につきやすい大型種か，小型種であっても比較的動きのある種からなっているのに対し，マベの貝殻から得られた種は付着生物の間に潜り込む習性をもつ小型種で構成されている．スクーバ潜水による採集品とドレッジによる採集品にはもっと多くの共通種が期待されるが，前者には小型種の採集に，後者では複雑な海底での採集に限界があることから，採集方法としては両者は互いに補完すべきものである．

記録された合計81種には2新種が含まれている．オウギガニ科の *Miersiella cavifrons* sp. nov. の近縁種は相模湾，インド洋東部のクリスマス島，オーストラリア東部のニューサウスウェールズ州から知られている *M. haswelli* (MIERS) のみである．一方，エンコウガニ科の *Psopheticus megalops* sp. nov. の所属にはやや疑問があるが，この属には日本からインドまで分布するナキエンコウガニ *P. stridulans* WOOD-MASON，台湾の高雄とビルマ（ミャンマー）のマルタバン湾から記録されているモンツキエンコウガニ *P. insignis*

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ALCOCK, 日本とフィリピンに産するウスベニエンコウガニ *P. hughi* RATHBUN およびニューカレドニアから記載された *P. vocans* GUINOT の4種が知られている.

日本新記録種は Table 1 の各種名の前に星印を付して示してあり, カイカムリ科1種, コブシガニ科3種, ヤワラガニ科1種, クモガニ科5種, ヒシガニ科3種, ワタリガニ科2種, オウギガニ科2種, ケブカガニ科2種, エンコウガニ科3種, カクレガニ科1種の合計10科23種に達する. 新記録種はいずれも, 従来, フィリピンやミロネシア, マレー諸島などから知られている南方系種である. これほど多くの日本新記録種が見い出されたということは奄美大島の浅海域の調査がほとんど行われていなかったことを示している. 海峡内だけでなく外海に面したサンゴ礁域の浅海の調査が行われれば, さらに多くの種が追加されるものと思われる.

また, 従来, 琉球列島南部からのみ記録されていたカニ12種が採集された. それらはコブシガニ科1種, クモガニ科1種, ワタリガニ科2種, オウギガニ科5種, ケブカガニ科1種, サンゴガニ科1種, サンゴヤドリガニ科1種で, 日本新記録種ではないが, いずれも分布の北限が奄美大島まで広がったことになる.

一方, 本州中部から九州沿岸にのみ分布するとされていた日本固有の3種, コブシガニ科のゴカクウスヘリコブシガニ *Cryptocnemus pentagonus* とロッカクコブシガニ *Nursia japonica*, エンコウガニ科のモールスガニ *Xenophthalmodes morsei* が今回の調査で採集された. これらはいずれも小型種であるが, 形態的に特徴があるため同定に問題はない. 分布の南限が奄美大島まで広がったことになるが, 従来のフィリピンやインドネシア海域の広範な調査において記録されていないことから, 奄美大島よりさらに南方海域に分布している可能性は低い.

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Explanation of Plate 4

Fig. A. *Leucosia alcocki* OVAERE, 1987, ♀ (cb 9.2 mm) from St. 24.

Fig. B. *Actaea perspinosa* BORRADAILE, 1902, ♂ (cb 8.0 mm) from Oshima Passage.

Fig. C. *Metaxanthops acutus* SERÈNE, 1984, ♀ (cb 9.9 mm) found in refuse of pearl shell, *Pteria penguin*.

Fig. D. *Pinnotheres villosulus* GUÈRIN-MÉNEVILLE, 1831, ♀ (cb 13.3 mm) from mantle cavity of silver lip oyster, *Pinctada maxima*.

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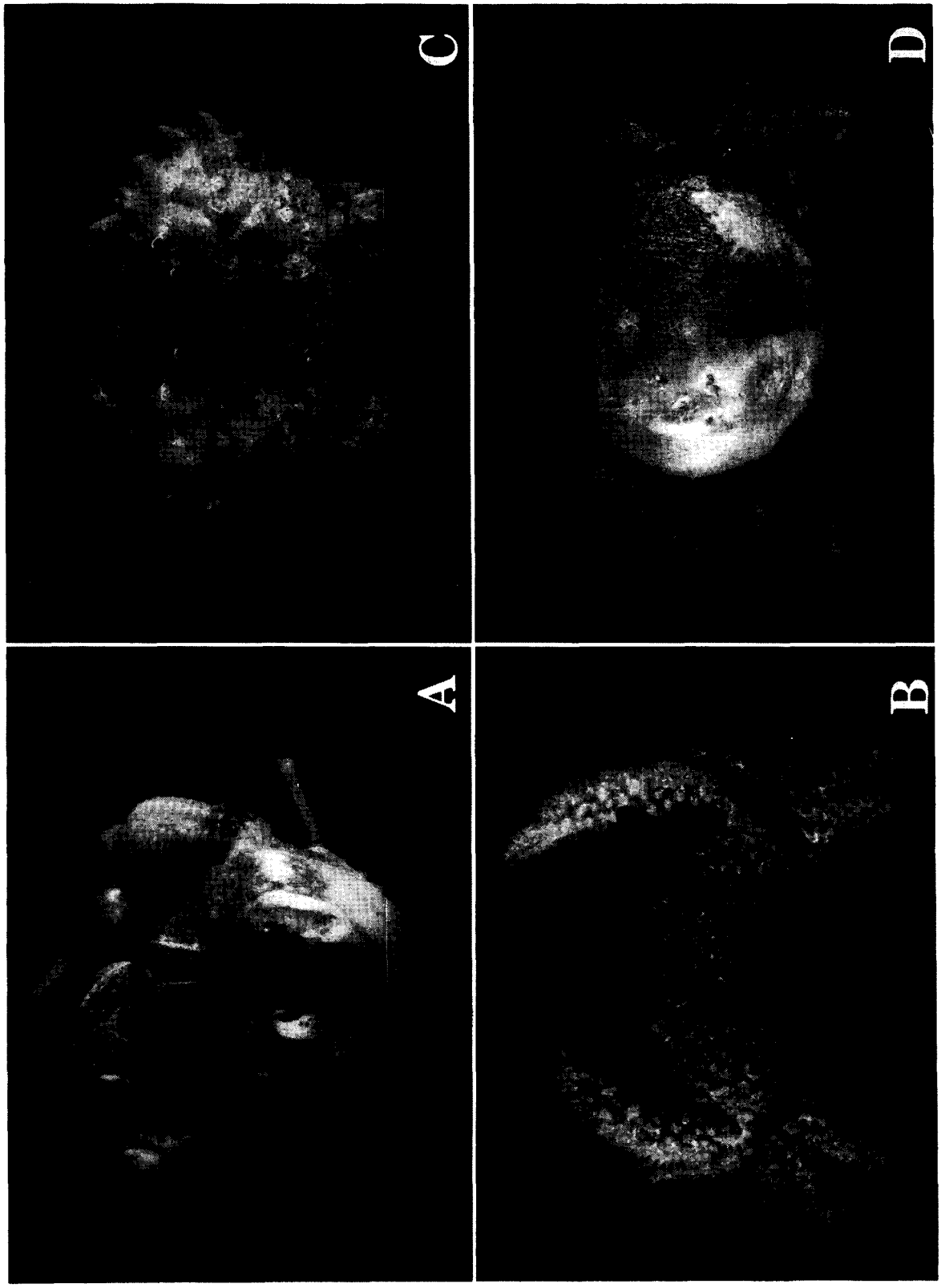

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